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A Level System as a Reliable Indicator of Behavioral Progress for Students with Severe Behavioral Disorders

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A LEVEL SYSTEM AS A RELIABLE INDICATOR OF BEHAVIORAL PROGRESS
FOR STUDENTS WITH SEVERE BEHAVIORAL DISORDERS

An Ed.S. Field Project

Presented to the

Department of Psychology

and the

Faculty of the Graduate College

University of Nebraska

In Partial Fulfillment

Of the Requirements for the Degree

Specialist in Education

University of Nebraska at Omaha

By

Jill Lynn Snodgrass

August 1998

Department of Psychology

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EDS FIELD PROJECT ACCEPTANCE

Acceptance for the faculty of the Graduate College,
University of Nebraska, in partial fulfillment of the
requirements for the degree Specialist in Education,
University of Nebraska at Omaha.

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Date *7/29/98*

A LEVEL SYSTEM AS A RELIABLE INDICATOR OF BEHAVIORAL PROGRESS
FOR STUDENTS WITH SEVERE BEHAVIORAL DISORDERS

Jill L Snodgrass, Ed.S.

University of Nebraska, 1998

Advisor: Dr. Lisa Kelly-Vance

Abstract

Students who exhibit behavioral problems represent a large segment of the school-age population. Common to the array of placements which serve this population away from the mainstream classroom is the level system for behavioral management. Level systems provide a hierarchy of behaviors as a guide for students to eventually build a repertoire of increasingly complex behaviors. The current study examined the effectiveness of the level system to accurately reflect the behavioral progress of students. Frequency of desirable behaviors, disruptive behaviors, time out, and time after school was recorded over a 19-week period for 50 students. Results of the statistical analyses revealed no differences among the students across phases of the level system or across school level. However, an interaction effect approaching significance between the level system phases and the school level indicated a trend toward behavioral improvements with promotion in the level system and with an increase in age.

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A Level System as a Reliable Indicator of Behavioral Progress for Students with Severe Behavioral Disorders

Statement of the Problem

Students with behavior problems make up approximately one percent of the school-age population or ten percent of students receiving special education services (U. S. Department of Education, 1995). Researchers believe the number of students identified with behavioral disorders is remarkably underrepresented and may approach as many as ten percent of the total school-age population (Kazdin, 1989b). In addition, the estimates in the ratio of males to females is disproportionate extending from a range of three to one (Dice, 1993) and up to five to one or more (Achenbach, Howell, Quay, & Conners, 1991).

Providing educational services for this particular population is disconcerting for educators due to problem behaviors manifesting in a myriad of topographies. Therefore, a continuum of services exists in order to meet the needs of each individual. Services extend from resource rooms to residential facilities. Behavioral interventions such as the level system are prominent in many settings and focus on monitoring behavioral progress in order to eventually move students into the less restrictive placements. Other interventions used in conjunction with level systems in anticipation of severe behaviors are time-out and time after school.

Although level systems are an accepted practice in many types of settings, previous research has offered little data demonstrating the efficacy of the level system as an intervention for remediation of behavioral problems (Smith & Farrell, 1993). There

are two true empirical studies that have noted behavioral improvements with promotion across levels. Rather than providing data regarding positive behavioral progress, previous research on level systems has been mainly of a descriptive nature. It is posited that the results from the current study will aid in understanding whether or not the level system is a viable tool for intervention, and in determining the behavioral gains made by students within a level system as a guideline for more proper behavior.

The current study focused on movement through a level system to accurately reflect behavioral gains made by students in one day treatment program. Frequency of desirable behaviors, disruptive behaviors, time-outs, and time after school were taken from archival data over a 19-week period. It was projected that the number of desirable behaviors should increase as the student is promoted to a higher level, while disruptive behaviors, time-outs, and time after school diminish. If these two scenarios occur, the use of level systems may gain more credibility as a primary focus of intervention for students with behavioral problems in many types of settings. Also the level system may be considered a valid indicator of the student's ability to acquire behaviors which would enable the student to either return to the home school or be placed in a less restrictive environment.

Literature Review

The following review will discuss the definition of behavioral disorders, characteristics of children with behavior problems, services available, and current behavioral interventions in practice such as level systems, token economies, time-out, and time after school. Emphasis will focus on the diversity of problem children with

behavioral disorders present, and the concerted effort by educators to find acceptable and individualized services and interventions for them. One specific intervention currently implemented in many educational settings, level systems, will be discussed along with more supportive interventions that are frequently used in conjunction with level systems.

Students with Behavioral Disorders

The total school-age population (6-17 years) who received special education services in the 1993-1994 academic year under IDEA was 4,533,889 (U. S. Department of Education, 1995). Of these students, 391,064 students or .89% of the total school-age population (6-17 years) were identified with serious emotional disturbance under IDEA (U.S. Department of Education, 1995).

Several labels for students exhibiting behavior difficulties appear in the literature. Federal government guidelines in P.L. 101-476, the Individuals with Disabilities Education Act (IDEA), refer to this population as having “serious emotional disturbance” (SED). The U.S. Department of Education (1992) qualifies students under this label if the behaviors are pervasive, negatively impact the child’s academic achievement, and cannot be attributed to other organic factors, with the exception of schizophrenia. Children with SED may experience problems developing interpersonal relationships with peers and teachers, may demonstrate inappropriate reactions to normal situations, and have a tendency to develop psychosomatic symptoms.

In the state of Nebraska, the behavioral disordered definition parallels that of the federal term “serious emotional disturbance” (Nebraska Department of Education, 1996b). According to the 1995-1996 special education statistics for the state of

Nebraska, 34,375 students (ages 6-17 years) received special education services under IDEA. Among the students receiving services, 2,710 students or 7.88% were given a primary label of behavioral disordered (Nebraska Department of Education, 1996a). For the purpose of the current study, the term “behavioral disordered” will be used.

To be identified as qualifying for special education services under the category of behaviorally disordered, a student’s actions must deviate from the actions of his/her same-age peers and other special education populations (Cullinan, Epstein, & Lloyd, 1983). The conduct of male students with behavioral disorders was compared with the conduct of male students with learning disabilities. Comparisons were based on teacher reports as reflected by scores on a behavior rating scale (Harris, King, Reifler, & Rosenberg, 1984). When teacher ratings of student behaviors were graphed across all areas examined, the profiles of both groups were almost identical. The students with emotional disturbance differed from students with learning disabilities only in the severity of their problems. For the students with emotional disturbance, 75% had at least one subscale that was in the clinically significant range, whereas 50% of the students with learning disabilities had at least one subscale in the clinically significant range.

Undesirable behaviors that are characteristic of children with behavior problems include aggression, hyperactivity, social maladjustment, anxiety, social withdrawal, and impulsivity (Cullinan, et al., 1983). Behavior patterns can be classified as either externalizing or internalizing. Externalizing behaviors consist of noncompliance, low achievement, classroom disruptions, high levels of social engagement, and aggressive behaviors. Internalizing behaviors relate to performance deficits, low achievement,

nonassertiveness, little participation in activities, and withdrawal or isolation (Walker, & Bullis, 1990).

Nearly 44.6% of students identified as behaviorally disordered during the 1989-1990 school year had failed one or more classes in the previous year of high school. In comparison, 35% of students with speech impairments and 34.8% of students with learning disabilities failed one or more courses. Students with behavior problems also have the lowest grade point average (1.7 on a 4.0 scale) of any other group identified with a disability. The dropout rate for this population was 40.14% nationally. These students are also the least likely to be integrated into mainstream classes with an average of 1.9 classes (Shea & Bauer, 1994).

In summary, students with behavioral disorders are often difficult to qualify for services because of the lack of congruent terminology at the federal and state levels. Behaviors typical of this population manifest in an array of topographies and frequencies but are more severe than those of their same-age cohorts. Therefore, educational programming for students with behavioral disorders poses a challenge. As educators face decisions as to the most appropriate placement and services for a student with behavioral problems, they will find in most communities a number of options that are available to the student.

Services for Students with Behavioral Disorders

A well-established research base exists describing the deficits and problems associated with students with behavior problems. Placement decisions must be made on an individual basis. Severity, intensity, and duration of behaviors must be documented so

well informed individuals make placement decisions. Services needed for a child can be provided by a placement occurring along the continuum of care. Federal law also mandates that alternative placements are provided to students with disabilities. These services may include, but not limited to, “regular classes, special classes, special schools, home instruction, and instruction in hospitals and institutions” (U.S. Department of Education, 1992, p. 44823).

Deno (1970) described a cascade system which placed services from a Level 1 to a Level 7 placement. Level 1 or less restrictive placements include the regular classroom with and without supplementary services. Level 7 placements are more restrictive to the persons and include inpatient programs in hospitals or residential treatment. Kerr and Nelson (1983) provide an illustration of the hierarchy of services, severity of behaviors, and number of pupils enrolled in each program. Under this model, as the child’s behavior worsens, the placement becomes more restrictive, and the number of children in the program decreases. Ultimately the goal of any type of program is to transition the child into an environment that is closer to the mainstream or regular education class.

Current Placements. According to the Seventeenth Annual Report to Congress on the Implementation of The Individuals with Disabilities Education Act (U.S. Department of Education, 1995), about 22% of children ages 6-11 and 19% of children ages 12-17 identified with behavioral disorders in the 1992-1993 school year received services in the regular classroom. A much larger number of 6-11 year old students with behavior disorders, an average of 40%, were receiving services in self-contained classrooms, with a range of 1% to 74% by state. Nearly 33% of all 12-17 year olds identified with

behavioral disorders across the U.S. were receiving services in separate classrooms, with a range of 7% to 62% among states. Nonetheless, the majority of students with behavior disorders in both age ranges were receiving special education services in the regular school facility.

Day Treatment Programs. An emerging alternative to pure educational settings, residential facilities, or psychiatric hospitals is the day treatment program, designed to fall between the two extremes of the continuum. Day treatment combines mental health services with the educational services and at a much lower cost compared to residential or hospital settings (Topp, 1991). A collaborative effort of two or more community-based services distinguishes day treatment facilities from other types of programs. In addition, children are able to stay in their current placement, preferably at home with their parents, and avoid going to more long term placements, such as residential treatment centers (Comer, 1985; Schutjer, 1982). Day treatment centers are most notably located in hospital settings focusing more on the mental health component. In comparison, school settings lack the resources to address mental health concerns. In a school-based day treatment program, a joint collaboration between educational and mental health services exists where the facility is located on school property (Duncan, Forness, & Hartsough, 1995).

With respect to all settings along the continuum of care, a large number of students with behavior disorders are being served outside of the regular education environment. Empirically based interventions and programs need to be established in order to reintegrate these students into lesser restrictive environments. For many

facilities including day treatment programs, a level system is implemented as a resource of expected behavior for the student and as an aid in returning to the home school.

Level Systems

Many environments which provide services and support to students with behavior disorders implement a level system as a way to set goals for improving behaviors based on a hierarchy of behaviors to be demonstrated. Basic behaviors, such as following instructions or staying on-task, serve as fundamental steps to more complex behaviors, such as controlling anger and completing all homework assignments (shaping) (Bauer, Shea, & Keppler, 1986; Dice, 1993; Hewett, 1967; Jones, Downing, Latkowski, Ferre, & McMahon, 1992; Shea & Bauer, 1994). Each student must demonstrate knowledge of the behaviors consistent with the expectation of the level in which the student is placed before being promoted to the next level (Scheuermann, Webber, Partin, & Knies, 1994).

Kazdin (1977) describes the level system as a program, which starts with minimal expectations for behaviors with equally minimal reinforcers. Once the criteria or expectations for the behaviors have been met, the child may advance to the next level. On the higher level, the criteria for appropriate behavior are increased in proportion to the consequences. Requirements for each level approximate more desirable behaviors. Incentives for a child to perform at a level with much higher expectations of behaviors include reinforcers that are equivalent to the expectations (Bauer, et al., 1986). Kazdin (1977) equates advancement in the level system to a job promotion, school promotion, or graduation from different levels of schooling. If a student successfully completes the requirements of each level, s/he is generally transitioned into a less restrictive placement.

Thus a student who has passed from one level to the next should have demonstrated the capability of performing behaviors across a variety of situations and settings commensurate with the expected behaviors within the mainstream classroom (Mastropieri, Jenne, & Scruggs, 1988).

The level system has its foundation in applied behavioral analysis (Kazdin, 1977). Applied behavior analysis asserts that the behavior of an individual or a group of individuals can be brought under stimulus control. All behaviors, including the experimenter's, must be clearly defined and observable (Baer, Wolf, & Risley, 1968). In accordance with classic applied behavioral techniques, level systems involve the principles of shaping, fading, and generalization (Morgan & Jenson, 1988). Introductory levels are set up to control behavioral excesses, aggression, and noncompliance. Intermediate levels are designed to teach replacement behaviors, while the highest levels are for generalization and self-monitoring. The entire system along with the tangible reinforcers is eventually faded (Morgan & Jenson, 1988). A level system then serves as the framework from which to build an effective behavioral management program. One of the most essential features of the level system is moving from an external reward system to an internal reward system (Mastropieri, et al., 1988).

In a preliminary study, observational data of a resource classroom that had implemented a level system for three weeks was documented. Total class talkouts and out-of-seat behavior had significantly decreased for the entire class. A second experiment was conducted as an evaluation of level systems using a reversal experimental design with four high school students in order to manage academic

behaviors. With the level system in place, the average assignment accuracy and completion were significantly improved. Furthermore, these preliminary results suggest that students with behavior disorders utilizing a level system program make behavioral, social, and academic gains (Mastropieri, et al., 1988).

A more recent study documented behavioral outcomes of students utilizing a level system in a day treatment program over a 10-week period (Hill, Esser, & Weidner, 1997). Student behaviors, either positive or negative, were recorded on a 15-minute, variable interval schedule. The results of the study indicated behavioral improvements as students were promoted to higher levels. The most remarkable results were the comparisons between the lowest level and the highest level. Based on the outcome measures over time, students demonstrated more appropriate behaviors with a concomitant decrease in inappropriate behaviors.

One dilemma to studying level systems is the lack of consistency between programs. Although each level system may contain similar essential components, not all level systems are equal (Mastropieri, et al., 1988). Common features of level systems include posting behavioral requirements and privileges for each level, and setting the criteria for promotion to higher levels (Bauer, et al., 1986).

Because little data exist documenting the qualitative or the quantitative changes for students by employing a level system, it is important to evaluate the token economy literature to support its use. Token economies are frequently encountered concomitantly with the level system and provide an essential element in the delivery of reinforcements. Furthermore, token economies rely on many of the same behavioral principles as the

level system, including shaping, fading, and generalization, to modify behavior. The number of tokens earned by a student in a token economy is designed to reflect progress made by the student in successive approximations of target behaviors. As target behaviors are mastered, tokens are used as the medium of exchange. This, in turn, helps to shape more complex behaviors. Similarly, the specific levels in a level system represent milestones in the mastery of increasingly more complex behaviors.

Token Economies. Token economies have demonstrated their efficacy in psychiatric settings (Allyon & Azrin, 1968), a classroom of a residential treatment facility (Gable & Strain, 1981), a resource/self-contained classroom for students with various handicaps (Anderson & Peach, 1993), and for students with behavior disorders in a special school program (Gaughan & Axelrod, 1989). The first step in implementing a token economy is to select the target behaviors of the intervention and operationally define the behavior (Allyon & Azrin, 1968). Next, the back-up reinforcers are chosen (Gable & Strain, 1981; Jones, et al. 1992) and often with the participation of the individual (Anderson & Peach, 1993). Reinforcers may include edibles, activities, privileges, or trinkets (Allyon & Azrin, 1968; Jones, et al., 1992; Kerr & Nelson, 1983). Target behaviors are then either reinforced or punished by earning or losing tokens (Kazdin, 1977).

“For maximum efficiency, a token economy should directly interact with a classroom level system” (Morgan & Jenson, 1988, p. 374). Many token economies are embedded within the level systems or in a few cases, level systems are merely leveled token economies. A token economy should be used in conjunction with a level system

for the purpose of fading the token reinforcers (Jones, et al., 1992). Possibly the first example of this type of program is Hewett's (1968) engineered classroom. The classroom was designed in a hierarchy of educational tasks from which each student could progress once the child demonstrated knowledge of the behavior. A checkmark was placed on the student's work record card for accomplishments. Completed cards were then exchanged for small items on a weekly basis.

Token economies have been integrated into level systems for children with behavioral disorders in a self-contained classroom (Morgan & Jenson, 1988), as a point card system in the classroom of a residential treatment center (Gable & Strain, 1981), and in a psychiatric inpatient unit (Jones, et al., 1992). Gaughn and Axelrod (1989) collected behavioral data and standardized academic achievement scores for students attending a partial hospitalization/special school program over a one-year period. Children could earn points for nine behaviors; small items could be purchased with points daily and weekly. Students were able gain access to increased privileges for maintaining a certain level of appropriate behaviors and eventually return to the public school. Students were found to have established high rates of all nine appropriate behaviors, but they made little progress in terms of standardized academic achievement scores.

Many programs substitute a point system in place of tokens. Points are earned for appropriate and inappropriate behaviors and documented on a sheet of paper (Anderson & Peach, 1993) and are then the means of exchange for back-up reinforcers (Kazdin, 1977). Point systems have been effective in increasing academic performance

(Brodén, Hall, Dunlap, & Clark, 1970), for daily classroom behavior management in groups, for individuals (Barbetta, 1990), and to aid students in special school settings work their way back into the regular classroom (Vetter-Zemitzsch, et al., 1984).

The goal of a token economy is to prompt a person to emit a high rate of the target behavior (Kazdin, 1989a). In many cases this procedure involves the process of shaping (Jones, et al., 1992). Close approximations of the behavior are reinforced until the desired response can be maintained by praise (Kazdin, 1989a). After the response has clearly been demonstrated, the tokens are gradually withdrawn or faded. Some of the strengths associated with token economies are the immediate reinforcement of the response with the token, delayed gratification by cashing in tokens at a time apart from the person emitting the desired behavior, and token economies do not disrupt the occurrence of the behavior or the behavior chain (Allyon & Azrin, 1968; Kazdin, 1989a).

In conclusion, identifying students with behavioral disorders is not always a clear-cut process. Educating these students requires a system to address the unique needs of each child. Level systems and token economies are continuously being utilized conjunctively in a variety of educational settings. If level systems were demonstrated to be an effective behavioral intervention, then educators could implement the level system as one measuring device for a student's readiness to transition into a less restrictive environment.

Consequently level systems and token economies may not be effective in every situation when confronted with a violent student. Students with severe behavioral disorders manifest verbal and physical aggression against others or themselves.

Punishment procedures must be included in the behavior management package.

Punishment strategies allow for the removal of reinforcing stimuli for the purpose of reducing a particular behavior. Two common forms of mild punishment are time-out and time after school.

Time-out. Time-out from reinforcement has been utilized as a behavior management strategy or punishment for over 30 years. One of the first children to learn time-out was a seven-year old boy who had been institutionalized for 18 months for severely aggressive behavior (Bostow & Bailey, 1969). At the hospital, he was tied up 24 hours a day and also received two tranquilizers daily. Upon implementing a 2-minute time-out procedure for aggression (biting, hitting, scratching, etc.) and providing edibles for reinforcement of appropriate behavior, his rate of aggression decreased dramatically during the first treatment session. In a short period of time, the young boy was included in all activities on the ward and was observed to interact well with the other children, including giving them hugs. Bostow and Bailey concluded “that brief, ‘nonpainful’, and easily administered consequences can prove to be extremely effective in reducing severe and even violent behaviors, may provide an attractive alternative to the use of electric shock for such purposes” (p. 37).

In sharp contrast to behavior modification techniques 30 years ago including electric shock and 24-hour restraints, today some researchers are questioning the aversiveness of using brief time-out with children (Lutzker, 1994). Others are considering the legal ramifications of teachers sending students to time-out (Gast & Nelson, 1977; Yell, 1994). Children similar to the aforementioned 7-year old are

attending school on a daily basis, and teachers are seeking effective methods to control children with behavior problems. Time-out is effective in decreasing many behaviors including aggression (Webster, 1976), disruptive classroom behavior (Crespi, 1988), and noncompliance (Rortvedt & Mildtenberger, 1994) with few aversive effects.

A review of four federal court cases concerning the use of time-out by classroom teachers was summarized (Yell, 1994). The decisions of the court regarding exclusion and seclusion time-out were to use both procedures appropriately and do not abuse the privilege. Exclusion time-out occurs when the child is placed away from the activity in the classroom and not permitted to observe the other children. Seclusion time-out is considered to be the most aversive and probably the most effective form of time-out. Seclusion time-out involves the child being removed from the classroom and being placed isolation in a separate room (Gast & Nelson, 1977). Exclusion and seclusion time-outs are often a part of the treatment of children and adolescents in day treatment, residential, and hospital facilities. Seclusion time-out has been demonstrated to be less effective if monitored by a teacher in the classroom and more effective if a time-out specialist is monitoring the time-out (Crespi, 1988).

Yell (1994) abstracted eight major principles from the four federal court cases regarding the use of time-out for behavior management purposes. In summary, schools should develop guidelines for the procedure, teachers should be aware of the policies, have written permission from parents, and others. One crucial element that must be evident if time-out is to be effective and appropriate is providing a stimulating environment that is reinforcing to the child (Gast & Nelson, 1977).

Although time-out is not the only means of delivering punishment or managing behavior, it has been shown to be effective across behaviors and settings. In addition to time-out, time after school or detention is often used to curb behavior problems in the school setting.

Time after school. Another technique for behavior remediation, which is prominent in school systems, is detention or time after school. Unlike suspension or expulsion from school, time after school does not take away from the classroom instruction (Hudgens, 1979), and the time is spent working on homework assignments (Social Education, 1982). Detention has been reported to decrease the number of suspensions from school (Harvey & Moosha, 1977) and has been deemed as an acceptable consequence by the courts, because it does not interfere with educational programming (Social Education, 1982).

Both time-out and time after school are behavior reduction techniques. When used in conjunction with level systems, time-out and time after school can serve as the interventions for the most severe behaviors. After either strategy has been employed, the student is often given the opportunity to earn back privileges, points, or tokens. Time-out and time after school may also serve as indicators of behavioral improvement as the student advances in the level system.

Purpose of the Study

The myriad of topographies of problem behaviors which are characteristic of each student with behavioral disorders provide the impetus for school officials to make programming and placement decisions which properly address the individual needs of the

student. One type of behavior management strategy commonly found in settings along the continuum of care includes the level system. Level systems provide a structure for behavioral expectations and concomitant privileges available to the student. Token economies are frequently embedded in the level system to assist in the allocation of the reward and consequence portion of the program. The ultimate goal of a program that includes a level system is to return the student to his/her home school or to the least restrictive environment appropriate to their education.

Researchers have seldom documented outcomes to determine if a student is acquiring the behaviors and meeting the goals set forth by the level system. The current study addressed this particular issue by analyzing historical outcome data including frequency of desirable and disruptive behaviors, time-outs, and time after school of students enrolled in a separate, public school facility. It was hypothesized that as students progress through the levels, there would be a decrease in the number of disruptive behaviors, time-outs, and time after school, with a subsequent increase in the number of desirable behaviors. Students start to learn and practice more desirable behaviors and thus desirable behaviors begin to replace incompatible, more disruptive behaviors. Main effects were expected for each outcome measure. An increase in desirable behaviors and a decrease in disruptive behaviors, TO, and TAS from Introduction to Generalization Phase was posited. No interaction effects were predicted for any measure between the Introduction and the Integration Phase. At this stage, desirable behaviors should be relatively low and disruptive behaviors, TO, and TAS comparatively high for each phase. Four interactions were predicted for all four outcome

measures between the Introduction Phase and the Generalization Phase. A dramatic increase in desirable behaviors with a concomitant decrease in disruptive behaviors, TO, and TAS was expected.

Method

Participants

Participants included 66 male students in fourth through 12th grade attending a day treatment program for students with behavioral disorders in a midwestern state. The program accepts children from kindergarten through 12th grade, but at the time of the study, no students younger than fourth grade were enrolled in the program. Students were referred to the program from school districts around the metropolitan area and surrounding communities. Students had been identified under current state and school district guidelines as eligible for special education with the label of behavior disorders.

Student information was included for those on the Introductory, Integration, or Generalization Phases of the level system at the time the data was collected (see Table 1). To be considered for inclusion in one phase (Introduction, Integration, or Generalization), the student must have spent a minimum of 17 weeks in that phase, completed Level 3 at some point during the study, or started the program later in the semester. No student was placed in more than one phase. For example if a student was finishing the Introduction Phase at the beginning of the data collection period (i.e., he completed it within three days), the individual would be considered in the Integration Phase group, not the Introduction Phase group. Seven students were dropped from the study due to excessive absences (> 20 days), three were placed in more restrictive placements, four students voluntarily dropped from the program, and two students were promoted to a higher level during the data collection. Therefore, 50 students were included for the final data analyses. Because of the extremely low number of females

Table 1

Demographics of the Sample

	<u>Frequency</u>	<u>Percentage</u>
Grade Level		
Elementary (4-6)	11	21.6
Middle School (7-9)	30	58.8
High School (10-12)	9	17.6
Race		
Caucasion	36	70.6
African American	13	26.0
Hispanic	1	2.0
Phase		
Introduction	22	43.1
Integration	22	43.1
Generalization	6	11.8

attending the day treatment program, no females were included in the study. The age range for students was from 9 years to 17 years with a mean age of 13 years. The mean grade level was seventh grade.

Because the school is also a licensed mental health provider, the children have conjunctive psychiatric diagnoses based on the Diagnostic and Statistical Manual-IV (American Psychiatric Association, 1994). Diagnoses include attention deficit hyperactivity disorder (with or without hyperactivity), conduct disorder, oppositional defiant disorder, dysthymia, and others. Records of each student are carefully reviewed by school personnel prior to student acceptance to ensure that the school district has provided an adequate amount of intervention and that the behavior problems are severe enough to warrant a more restrictive placement. All students attending this program have measured intelligence above the level of mental retardation.

Setting

The current study was conducted in a day treatment program in an urban area. The program is a segregated facility for students who have been identified for a Level 3 behaviorally disordered placement. Services are available to students from the surrounding school districts. The program is affiliated with a human services organization and has been in operation for nearly 17 years. The human services organization is governed by a board of elected officials from the county. Although not directly linked with one particular school or school district, the program may be considered a school-based day treatment program. The program places a strong emphasis on providing a solid educational component in conjunction with mental health

services. Licensed mental health professionals are on-site for those students who do not otherwise have access to mental health services in the community. The Joint Commission on the Accreditation of Health Care Organizations (JCAHO) accredits the facility.

Referral process. Identification of a student potentially eligible for a Level 3 placement include the following criteria: 1) guidelines set by Rule 51 under Nebraska state law (Nebraska's verification guidelines); 2) the school district is unable to provide services which would meet IEP objectives; and 3) meeting additional admission criteria set by the personnel at the day treatment program. Each student is reviewed on an individual basis and the multidisciplinary team determines placement for that student. The program has a total capacity of 72 children, kindergarten through 12th grade. A certified teacher and a program specialist are assigned to each classroom. Students attend school for 6 hours per day, five days a week.

Individuals are referred to the program from their home school district for displaying physical aggression, verbal aggression, and emotional disturbance. Most of these students are at risk of placement in a more restrictive environment such as residential care facilities. Students are guided in the development of the skills needed to return to a public school setting. In conjunction with academic services, the day treatment program provides mental health services including individual and group counseling, home-based family counseling, parenting skills training, and a parent support group which meets monthly. Staff work closely with referring school districts, social service caseworkers, juvenile justice professionals, mental health professionals, foster

parents, and community groups to provide a comprehensive system of care for each student.

Personnel. The day treatment program staff consists of a Director, Administrative Assistant, a Program Management Coordinator, Educational Coordinator, two social workers, a Program Development/School Liaison Coordinator, and 16 teachers and 2 time-out station specialists. Two teachers conduct a special class entitled Strategies of Success, which focuses on remediation of learning gaps, and two teachers conduct a class in industrial arts.

Classroom teachers are certified by the state and each holds a bachelor's degree in education. Every certified teacher in the day treatment program must also be currently enrolled in a graduate program. The average number of years of experience is four years, ranging from two to ten years. For the staff to be awarded clinical privileges, they must complete courses or seminars in applied behavioral analysis, token economy, time after school, medication management, conflict resolution, behavior management, level system, and other relevant topics.

Mission. The primary mission of the day treatment program is to help students who are unable to maintain placement within the traditional school system due to behavioral/emotional conditions. The underlying philosophy is a belief that troubled youth will engage in prosocial and responsible behavior to the extent that they will benefit from such behavior. Students attending the program are involved with an extensive skills development program that utilizes a behavior replacement paradigm and a cognitive-behavioral approach to skill acquisition. These models emphasize the

teaching of the skills necessary to replace the undesirable behavior the youth is demonstrating. Although many of the same skills are taught to each student, level and placement decisions are guided by the Individualized Education Program (IEP). These skills are learned in a class entitled Personal Growth and include impulse control, expressing feelings, problem solving, and others. The skills have specific steps that the student must learn and practice in real situations.

Classroom Environment. In the classroom, students are provided a stimulating and enriching environment and curriculum while their general and specific behavioral goals are tracked on point sheets. There are 12 students assigned to a certified teacher and an educational specialist in the classroom who teach curriculum, track behaviors to be increased and decreased, perform communication tasks with families, and write IEP's and quarterly updates of the student's progress. Students must complete assigned homework during the school day or remain after school in one-hour increments until the work is completed. When homework is assigned, however, the students must demonstrate that they are responsible to complete it. Homework is considered a privilege.

The Level System

The day treatment program's level system operates under the assumption that all students with behavioral disorders demonstrate unique behavioral problems, but they also have some behaviors in common. The staff have developed a level system which addresses those common behavior problems. However, the staff also follows the

particular treatment issues set forth by the IEP. Thus the level system provides the foundation on which the staff must build each student's treatment.

The day treatment program's level system contains four levels based on applied behavioral techniques including shaping, fading, and generalization. Level two is further divided into three sublevels 2a, 2b, and 2c. Students must demonstrate thorough knowledge, skills, effort, and behaviors specific to each level and sublevel before they are promoted to the next higher level or sublevel. Every student carries a daily point sheet which has goals and target behaviors listed. The token economy portion of the level system allows students to cash in earned points at the "store" for purchase of tangible items and privileges. Activities, special events (i.e., T-shirt day), recreation breaks, Nintendo, computer time, and homework are considered privileges and may not be accessed by Level 1 students. Each level has increasingly more privileges and opportunities to purchase items in the classroom store.

Introductory. Level 1 and Level 2a are typically described as the "honeymoon" period, considered the Introductory Phase. Students usually are trying to find their niche in the school and do not generally act out. At this point, staff break down each skill into smaller components for the new student to learn the skills required for that level. During the Introductory Phase, the staff and student are getting accustomed to one another. New students are versed in the social and behavioral requirements of the program. If a student is struggling to complete the Introductory Phase, the staff reviews the case to determine the level of assistance required for the student to pass through this phase. Staff track and monitor student progress on the interim IEP, develop a more permanent IEP, role play

with the student, develop a tracking sheet, complete a skills assessment, develop a reinforcer survey with the student, and engage in other various activities at this level.

The teacher and the student mutually set daily and weekly goals. A plan for the return to regular public school is written during this time period. Goals are determined in the areas of goal setting, self-improvement, communication, behavior outside the core classroom, attendance, schoolwork, return to public school, and promotion.

Integration. Level 2 is described as the “learning” level. Sublevels 2b and 2c combine to form the Integration Phase. Staff and students work on replacing inappropriate behaviors with behaviors more conducive to the public school setting. Where skills are lacking, new skills are taught. The philosophy of Level 2 is differentially reinforcing successive approximations of the target behavior (shaping). Fading techniques are applied to behaviors learned on the prior level, and students are informed that not all behaviors will be reinforced. Students on Level 2a and 2b are expected to display the behaviors that placed them in the day treatment program. Throughout their stay on Level 2, students meet with the staff to discuss specific target behaviors, define the behavior to be changed, teach the student the replacement behavior, and reward the student for practicing and using the replacement behavior. Competency, defined as the ability to explain the steps of the skill and identify appropriate situations in which to use these new skills, is mandatory for promotion to higher levels.

In general, Level 2 is aimed at developing replacement or new skills for use in everyday situations. However, each sublevel is designed to give the student access to more privileges and reinforcers with easier behaviors no longer being reinforced.

Consequently, the student must begin to include new behaviors in their automatic repertoire of behaviors and rely on more internal rewards and motivations for behaving more appropriately. Academically, the curriculum becomes increasingly more challenging, with Level 2c preparing students for their return to the regular public school. Just as Level 1 students are required to set goals, Level 2 students must also learn about goal setting and take more initiative in setting goals for themselves. Level 2 is also characterized as a period of turmoil for students, because they are being challenged and frustrated with developing and practicing new skills.

Generalization. Promotion to Level 3 assumes that the student is displaying behaviors more commensurate for regular education placements. Expectations of the students at this level are much greater. Structure is decreased, and freedom is increased. Demonstration of acquired skills is expected in novel situations for the purpose of generalization. Thus, Level 3 is considered the Generalization Phase. Reinforcement for skills is dramatically decreased. Formal planning and implementation of the transition into the less restrictive environment begins on Level 3. Gradually academic materials from the potential placement are added to the student's curriculum. Transition is dependent on student variables in that each student has unique qualities that may call for slower or quicker transitions.

Measures

Frequency of desirable and disruptive behaviors. Teachers and staff received thorough instruction in applied behavior analysis, interrater reliability, and the use of the point and level system. The staff carried students' point sheets at all times during the

school day. All behaviors that appeared on the point sheets had been operationally defined. Four core behaviors appeared on all students' point sheets including "quiet when appropriate", "remain in area", "compliance", and "appropriate interactions". The total number of behaviors that appeared on the point sheet was variable across the students. Outside of the four core behaviors, all other behaviors were taken from the Individualized Education Plan. Each behavior was matched with its "fair pair", meaning each behavior was matched with an incompatible behavior such as "quiet when appropriate" and "talking without permission". Points for disruptive and desirable behaviors were marked on a 15-minute, variable interval schedule and under special circumstances, such as a student being aggressive or exhibiting a very positive behavior, additional points can be earned throughout the day. Therefore in most 15-minute increments, only one tally mark was given for that time period. All core behaviors were marked for each student in each interval, but other behaviors were marked as the behavior had been observed within the 15-minute interval. If the behavior did not occur, a separate mark, such as a "0" was placed in that 15-minute slot.

Time-out. The staff at the day treatment program use the discipline technique of time-out from positive reinforcement for their students. When the staff determined that a student had lost control of his/her behavior, the student was placed in exclusionary time-out. The student was escorted to a time-out carrel where he was asked to sit quietly, with feet on the floor, and facing forward. When the student had become quiet, a timer was set for 5 to 15 minutes, depending on the child's age. The timer was reset each time the student did not comply with the instructions. The student was then required to complete

a problem-solving sheet which addresses the nature of the problem, the student's reaction, and how the student could have acted differently in that particular situation. After completion of the problem-solving sheet, the student was escorted back to the classroom and was required to review the precipitating event that led to the time-out with the staff person who initiated the procedure returned to the classroom. School personnel kept a record of each occurrence of a student being placed in the time-out carrel and the precipitating event that led to the time-out. Students were placed in time-out primarily for noncompliance, disrespect, and displaying disruptive or aggressive behaviors (see Table 2).

Frequency of time after school. Students are expected to comply with certain expectations each day that are set by the staff. If the student does not meet the daily requirements, then the student must complete the schoolwork after school in one-hour increments. A student may earn Time After School for not completing work, earning more than two time-outs in one school day, exceeding 30 minutes to complete a time-out, or for displaying acts of physical aggression. Children are not sent home early for disruptive behaviors and school attendance is strongly encouraged. If a student is kept after school, s/he must complete the assignment before being released from school to go home. The number of times a student was kept after school and the rationale for the detention were carefully documented by the staff in a computer data base. Both the frequency of occurrence and the reasoning for time after school were included in this study (see Table 3).

Table 2

Reasons for and Frequencies of Time-Out

<u>Reason</u>	<u>Frequency</u>
Noncompliance	296
Disrespectful	182
Disruptive	65
Aggression	49
Action against a peer	23
Dangerous Behavior	11
Other	5

Day of Occurrence

<u>Monday</u>	<u>Tuesday</u>	<u>Wednesday</u>	<u>Thursday</u>	<u>Friday</u>	<u>Total</u>
91	143	138	131	133	636
Physically Assisted to Time-Out		104			
Physically Restrained		4			

Table 3

Reasons for and Frequencies of Time After School

<u>Reason</u>	<u>Frequency</u>				
Time-out					
More than one	28				
Exceed time allowed	28				
Time-out after school	9				
Incomplete work	41				
Act toward peer	28				
Van Behavior	25				
Non-violent physical crisis intervention	17				
Act toward staff member	15				
Noncompliance	10				
Act toward property	5				
Contraband	4				
Day of Occurrence					
<u>Monday</u>	<u>Tuesday</u>	<u>Wednesday</u>	<u>Thursday</u>	<u>Friday</u>	<u>Total</u>
41	48	61	46	14	210

Procedure

A retrospective, cross-sectional study was implemented to examine data across a 19-week period. The current study analyzed data taken from an archival record search. Mean daily frequencies were calculated for desirable behavior and disruptive behavior, and total mean frequencies for TO and TAS across each group (Introduction, Integration, and Generalization). The classroom teachers collected point card data for the current study over a 19-week period during the fall semester. One week of the second semester was included due to school being cancelled for one week during the fall semester because of a snow blizzard. The number of desirable and disruptive behaviors was recorded on a 15-minute variable interval schedule. Types of desirable and disruptive behaviors were recorded concurrently. The staff also recorded frequency of time-outs (TO) and time after school (TAS) on a daily basis.

Data Analysis

A 3 X 3 design was the model for the current study with the phase (Introduction, Integration, and Generalization) and school level (Elementary, Middle, and High School) serving as the independent variables and the four measures as the dependent variables (desirable, disruptive, TO, and TAS). In order to ensure that each phase was not significantly different on any dependent measure when accounting for school level (elementary, middle, or high school), an analysis of variance (ANOVA) was calculated for each of the four dependent measures. After all preliminary statistics were completed, a multivariate analysis of variance (MANOVA) was performed to determine differences among the three levels on the four dependent measures.

Results

Based on t-tests, there were no significant differences for the four dependent measures for late-start, Introduction Phase students and other Introduction Phase students, and between students who completed the Generalization Phase before the end of the study and students remaining at the Generalization Phase for the entire 19-weeks. Mean frequencies for the dependent measures on the three phases are reported in Table 4. The mean number of time-outs was 12.70 with the mean number of time after school was 4.20 collapsed across phases for the duration of the study. Overall, behaviors worsen from the Introduction to the Integration phase, with an improvement in behaviors between the Integration to Generalization phase.

An analysis of variance (ANOVA) was computed for each of the four dependent measures to determine main effects and interaction effects across the three phases and school levels. No significant differences were found for desirable behaviors across phases or school levels, $F(4, 41) = .947$, $p = .447$ (see Table 5). For disruptive behaviors, no significant differences were found across phases and school levels, $F(4, 41) = .505$, $p = .732$ (see Table 6). In addition, frequency of time-out, $F(4, 41) = .637$, $p = .639$ (see Table 7), and frequency of time after school, $F(4, 41) = .039$, $p = .997$ (see Table 8), were not significant across phases or school level. Therefore, no differences were detected across phases or between school levels for any of the dependent measures.

A Multivariate Analysis of Variance (MANOVA) was conducted for phase and school level on all four outcome measures. The analysis was a 2 X 4 design with the phase and school level serving as independent variables and the four outcome measures

Table 4

Means and Standard Deviations of Outcome Data Across Phases

Outcome Measures	Introduction		Integration		Generalization	
	Mean	SD	Mean	SD	Mean	SD
Desirable Behavior	22.13	.97	21.67	1.47	22.16	1.02
Disruptive Behavior	.91	.65	1.52	1.32	1.00	.69
Time Out	9.68	9.86	17.41	20.11	6.50	7.34
Time After School	3.41	3.36	5.59	5.75	2.00	2.28

Note: 22 students in the Introduction Phase, 22 students in the Integration Phase, and 6 students in the Generalization Phase

Table 5

Analysis of Variance for Desirable Behaviors

Source	<u>df</u>	MS	F	<u>p</u>
Phase	2	1.178	.756	.476
School Level	2	.316	.203	.817
Phase X School Level	4	1.476	.947	.447
Error	41	63.924		

Table 6

Analysis of Variance for Disruptive Behaviors

Source	<u>df</u>	MS	F	<u>p</u>
Phase	2	31.547	1.492	.237
School Level	2	43.215	2.044	.143
Phase X School Level	4	.820	.039	.997
Error	41	21.145		

Table 7

Analysis of Variance for Frequency of Time-Out

Source	<u>df</u>	MS	F	<u>p</u>
Phase	2	381.383	1.586	.217
School Level	2	168.495	.701	.502
Phase X School Level	4	153.174	.637	.639
Error	41	9857.906		

Table 8

Analysis of Variance for Frequency of Time After School

Source	<u>df</u>	MS	F	<u>p</u>
Phase	2	31.547	1.492	.237
School Level	2	43.215	2.044	.143
Phase X School Level	4	.820	.039	.997
Error	41	21.145		

as the dependent variables. Significant differences were posited for all four dependent measures between the Introduction and Generalization phases. The MANOVA utilizing school level yielded no significant results on the Wilks' criterion, $F(8, 76) = .74737, p = .650$. When looking at the three phases, no significant results were found using the Wilks' criterion, $F(8, 76) = .60409, p = .772$. When determining interaction effects between school level and phase on the four outcome measures, the Wilks' criterion approached significance, $F(16, 116.73) = 1.59718, p = .082$ (see Table 9). The results reflect a nonsignificant relationship between school level and phase across dependent measures when acting as single variables. When school level and phase are considered together in the MANOVA, an interaction effect approaching significance was demonstrated. Therefore, differences on the four dependent measures were detected across phases when the phase was dependent on the school level. Since there were no main effects, other analyses could not be conducted to determine the source of the interaction. The interaction indicates directionality toward behavioral improvement across the three phases and as students become older.

Table 9

Multivariate Analysis of Variance for Phases and School Level

Source	Wilks' Lambda	Hypothesized DF	Error DF	Approximate F	p
School Level	.85945	8.00	76.00	.74737	.650
Phase	.88400	8.00	76.00	.88400	.772
Phase by School Level	.54718	16.00	116.73	1.59188	.082

Discussion

School personnel seek ways to intervene with and monitor the progress of students with behavioral problems. Level systems are frequently implemented as both the intervention and the means of monitoring progress. Previous research has shown that students do demonstrate improvements with promotions in a level system. However, that same research is mostly anecdotal and not systematic. The current study focused on tracking specific behaviors and events for 50 students with severe behavioral and/or emotional disorders across a 19-week period. Students attended a school-based, day treatment program, in which the level system is the foundation for the program. Four core behaviors (quiet when appropriate, remain in area, compliance, and appropriate interactions) were the desirable behaviors, while the “fair pairs” (talking without permission, out of area, noncompliance, and inappropriate interactions) made up the undesirable behaviors. Each student of the program has these eight behaviors on their point sheets. Other behaviors, taken from the Individualized Education Plan, are also on each student’s point sheets. Time-out from reinforcement is frequently utilized as a deterrent for more severe behaviors, as is time after school. The frequencies of time-out and time after school were also documented.

Results of the current study indicated no differences on the four dependent measures across the levels or phases. However when school age and level were simultaneously factored into the MANOVA, a trend toward a significant interaction was seen. The interaction implies behavioral improvements may occur for students with

promotion through the level system. In addition, older students may be making more behavioral gains compared with younger students.

A previous study conducted at the same location over a 10-week period suggested that students do make significant progress from the Introduction phase to the Generalization phase (Hill, Esser, & Weidner, 1997). Students demonstrated improvements in desirable behaviors with a concomitant decrease in disruptive behaviors, time-out, and time after school from the Introduction phase to the Generalization phase. Therefore over time, students had made behavioral gains from the time of entering a program to after a period of learning replacement behaviors and prosocial skills (Hill, et al., 1997)

Comparing the means of the four outcome measures, desirable behaviors decreased from Introduction to Integration and increased from Integration to Generalization. Disruptive behaviors had a similar pattern. The trend of a negative period between Introduction and Integration phases is not unexpected. Students typically have a “honeymoon” period upon entrance to a program. As students move through the phases, the staff places increasing demands for more appropriate behavior on them. When working with students with behavior disorders, progress is not linear. Students often learn replacement behaviors, but when faced with an intense situation may revert back to old, less appropriate behaviors. Similarly, students may be afraid of success. Before attending the day treatment program, students have not been successful in a variety of school settings. They may find themselves in an environment that encourages them to learn, behave appropriately, enjoy rewards, and accept praise for their

accomplishments. At the point of beginning to prepare for transition back to the public school, students may try to sabotage their success and progress in order to stay in the day treatment environment. Another cause for regression in behavior can be responses to therapeutic treatments. Students who typically “act out” under general circumstances may escalate their behaviors when faced with issues they have learned to emotionally and/or physically avoid.

A developmental progression was indicated by the interaction effect. Students who were older may be making more behavioral gains than younger students. This phenomenon could be due in part to the complexity of the level system and the cognitive development of the student. Younger students need interventions that are in more concrete terms, shorter delays in consequences, and more external rewards. A level system that encompasses children from ages 6 to 18 needs to compensate for natural, developmental steps and milestones. Children at less mature developmental periods may require adjustments, alterations, and more individualization to the level system being used with them.

Limitations and Future Directions

Several factors may have influenced the outcome of this study. First, there were relatively few students in the Generalization phase at the time of the study. Comparisons with the Generalization data were the most important to document accurate progress with promotion in a level system. With too few participants in one cell, the data may not have been an accurate sample of the general population. Many students may have been included in the study but were dropped due to poor attendance. The population in

general was relatively new with the majority of the students being on the Introduction and Integration phases. A large group of students had successfully “graduated” from the program prior to the data collection period. If the study had included this group of students, there may have been a much larger difference between the Introductory Phase outcome measures and the Generalization Phase outcome measures.

The short period of time over which the study was conducted may not be representative of the time progress can be demonstrated by students. Students have to learn, apply, and integrate new behaviors, which are far different than behaviors they have been utilizing through the course of their lives. In addition, each student has an individualized treatment plan. Although all students follow the same level system structure, the means of each student acquiring new skills may be in different forms for each student. Because each student has unique problems and ways of acting, the course of treatment including therapeutic goals is individualized.

Students with severe behavior problems pose difficulties for educators, administrators, and affect the learning of other students. Educators working with students with severe emotional and behavioral disorders need means of determining students’ growth and acquisition of more appropriate skills. Research of current and new interventions and progress monitoring for children with behavior disorders should be an essential and immediate priority. Case studies may be a more practical means of examining the progress of students with behavior problems and allows for more individual attention to developmental stages. Following individual students may be a better approach to determine if each student is making progress toward reaching

treatment goals with the level system serving as the indicator of progress. If it is determined that a student is not making progress, the individuals working with that student would be able to intervene at such a point.

Longitudinal studies of larger populations may also present a clearer portrayal of student progress, by tracking students through an entire program. The data collected from a large group of students entering and exiting a program at approximately the same time periods may provide a clearer picture of skill acquisition and behavioral improvements.

Other research should focus on other types of intervention tools and proactive practices to address the needs of children before their behaviors become a crisis. Another viewpoint from Smith and Farrell (1993) stated that level systems have not been shown to be reliable or accurate means of remediating severe behavior problems. Therefore, either the principles underlying the level system have not been implemented appropriately or the level system is not a reliable measure of behavioral progress. Researchers should also address the possibility of redefining what the level system is actually monitoring.

Summary and Conclusion

In summary, students with behavioral problems pose a challenge for educators to provide programming and an education for these children. Level systems have traditionally been a means of intervening with and monitoring behaviors of students. Although the current study did not provide support for the level system in monitoring student progress, the analysis did imply that students do make progress. Further research

over longer periods of time with larger groups could substantiate behavioral progress with a level system intervention.

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