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Residency status and age of entry as moderators of the effectiveness of a special act school district

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Residency Status and Age of Entry as Moderators of the Effectiveness of a Special Act School District

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Abstract

This study investigated the effectiveness of the program at Randolph Academy Union Free School District, a special act school district designed to educate students with emotional, behavioral, and learning difficulties. The outcome of treatment is documented by measurement of change in academic achievement. Pre-post comparisons of standardized achievement test scores were collected from the psychoeducational files of 49 students. Results indicate significant gains in academic achievement. A two-way analysis of covariance identified age of entry into the program as a moderator of academic achievement: younger entrants improved their relative ranking more than older entrants.

Residency Status and Age of Entry as Moderators of the Effectiveness of a Special Act School

Special act school districts are public schools within New York State which began as common schools to educate orphaned and neglected children or students with severe behavioral and physical disabilities. The New York legislature enacted "Special Acts" from 1967 to 1985 which allowed these schools to operate as public schools. Special act school districts are commonly affiliated and share campuses with residential Child Care Institutions (CCI) (RAUFSD, 1997).

The special act school district involved in this study, Randolph Academy Union Free School District, educates both students residing in the Child Care Institution (Randolph Children's Home) and students bused in from surrounding school districts. The students bused in are considered "day" students and have been placed at Randolph Academy due to their emotional, behavioral, and academic needs. Randolph Academy's program is aimed at improving the behavior and academic performance of its students so they can be successfully reintegrated into regular school settings. The population of students served at Randolph Academy are most frequently classified as Emotionally Disturbed following Part 200 of the Regulations of the Commissioner of Education of the State of New York. The other disability groups include Learning Disabled and Other Health Impaired.

There is no research available on the efficacy of special act school districts, however similar educational environments have been analyzed. There is research on private and public residential schools, private and public day school programs, and alternative high schools. An extensive review of literature indicated that limited research had been done on alternative edcuational settings for students with emotional and behavioral problems since 1994. There was some substantial research done on this topic in the 1970's and this literature was analyzed.

The present research seeks to document the efficacy of the treatment program at one special act school district, Randolph Academy, by measuring change in academic achievement. The research also seeks to evaluate independent student variables that may be associated with successful educational outcome. Literature that investigates the differences between students educated in residential schools and students educated in day schools for children with emotional and/or behavioral difficulties (EBD day schools) will be reviewed. Next literature regarding the use of change in academic achievement as a good indicator of treatment efficacy will be examined. Finally, literature pertaining to student variables which affect change in academic achievement will be analyzed.

Residential vs. Day Student Differences

Differences among students placed in residential schools and day schools for children with emotional and/or behavioral difficulties have been investigated ~~in the research~~. Students enrolled in residential schools were found to be older and presented more problems within their home situations than students enrolled in day schools (Browne, Stotsky, & Eichorn, 1977; Gemal, 1993; Lorandos, 1990). The residentially placed pupils also had more pervasive behavioral difficulties within their schools and communities (Gemal, 1993). Although students with emotional and behavioral disorders (EBD) have higher rates of school failure and earn lower grades than other disability groups (Oestmann, 1994), children with EBD in residential schools were found to have higher IQs and higher academic scores than children with EBD in day schools (Browne et al., 1977). Students in residential treatment were also more likely to have been classified as having personality disorders and had the highest prevalence of antisocial behaviors (Browne et al., 1977). Lorandos (1990) found that adolescent boys referred to residential treatment in recent years had more serious presenting problems than those enrolled in the past. Students recently referred have been involved in serious criminal activities such as drug offenses, sexual misconduct, and murder (Lorandos, 1990).

Children in the day EBD schools had more stable family backgrounds than the residentially placed students, and suffered from problems that were primarily school-based and not typically manifest in the home (Gemal, 1993). The EBD day student population was younger, had lower IQs, and lower achievement levels than the students in the residential schools (Browne et al., 1977). Children in day schools were more likely to suffer from psychoses, developmental disabilities, organic syndromes, character disorders, and neurotic conditions (Browne et al., 1977; Zimet & Farley, 1985). Sayegh and Grizenko (1991) reviewed studies on the effectiveness of day treatment and reported that day treatment is particularly beneficial for children and adolescents with any of the following problems: attention deficit disorder, conduct disorders, adjustment disorders, developmental delays with average nonverbal intelligence, and severe emotional disturbance.

It was hypothesized that students who came to Randolph Academy on a day student basis would benefit more academically than those who were residents in the child care institution. The literature indicates that day students had less behavioral difficulties and were more connected to their families and communities than the residential students (Browne et al., 1977; Gemal, 1993). Therefore, the day students were anticipated to produce larger gains in academic achievement than the residents.

Change in Academic Achievement as a Measure of Treatment Success

Students with EBD typically have below-average to average intellectual abilities but are below grade level academically upon entering day or residential treatment (Epstein et al., 1994; Hoffman & Nelson, 1977; Montgomery & Van Fleet, 1978). Poor school achievement is often linked to conduct disorder but the causal relationship is not known (Wenar, 1994). As students with EBD process through agency system(s), it becomes more likely that they fall even further behind in school performance (Hoffman & Nelson, 1977).

Although there is a good deal of information concerning the characteristics of students with EBD, the research on treatment outcomes is minimal. Few treatment programs conduct any type of research concerning program effectiveness (Oestmann, 1994). One of the desired outcomes for students enrolled in Randolph Academy is the development of academic skills enabling successful transition back into their home school and community. The research is inconclusive on whether academic improvement is a good indicator of treatment efficacy.

Baenen, Stephens and Glenwick (1986) reviewed research on psychoeduational day school programs and reported that improvement in academic performance was more difficult to achieve, of less importance, and less likely to be retained than behavioral improvement. Most students, in the studies reviewed, ceased declines in academic achievement, but few were able to achieve grade level scores.

Most day treatment programs fail to produce academic improvement because their theoretical orientations emphasize behavioral approaches that favor behavioral progress and the development of social skills instead of academic skills (Baenen et al., 1986; Epstein et al., 1994; Oestmann, 1994; Sayegh & Grizenko, 1991). Oestman (1994) documented treatment outcomes of a day treatment program that focused on both academic and behavioral skills development for students with behavioral disorders and found significant achievement gains in all academic areas.

Spellacy and Brown (1984) administered a battery of tests at the beginning and end of short-term residential institutional placement to juvenile offender males. These tests were again administered one to two years after discharge from the residential institution. The authors found the best predictors of prosocial change after institutionalization to be tests of academic achievement and mental control. Spellacy and Brown (1984) conclude that assessment, treatment, and discharge planning for juvenile delinquents should focus more directly upon academic progress as it is a good marker of mental effectiveness and self-confidence. There is also evidence that academic adequacy

at time of reintegration into a regular education environment predicts maintenance of both academic and behavioral adjustment (Baenen, Stephens, & Glenwick, 1986; Glavin, Quay, & Werry, 1971).

The majority of the research on the effectiveness of residential treatment reported significant gains in academic achievement (Hoffman & Nelson, 1977; Lochman, Bennett & Simmers, 1988; Montgomery & Van Fleet, 1978; Mordock, 1987). Lorandos (1990) published conflicting findings in his five year study to assess the effectiveness of a residential treatment program for adolescent boys. He found that academic achievement in the curricular area of reading decreased.

Variables that Affect Change in Academic Achievement

Change in academic achievement during day and residential treatment can be affected by many variables. One of the treatment variables that has been examined in the research is the age of the student at time of enrollment. The results of the few studies published are conflicting. Some studies found that students who were young at the time of admission produced positive outcomes in day treatment (Oestmann, 1994; Sayegh & Grizenko, 1997; Zimet & Farley, 1985) indicating that early intervention is an important treatment consideration (Oestmann, 1994). However, Mordock (1987) found that during residential treatment at the Astor Home children placed at younger ages actually made less improvement than those placed when they were older. He concluded that diagnosis and placement at a young age suggests more severe pathology and thus a poor prognosis. The inconsistent findings could be due to the two different placement settings. Day treatment is considered less restrictive and is typically utilized before residential treatment is considered. Therefore, young students in day treatment may have less severe academic and behavioral problems and consequently higher success rates.

Another variable related to change in academic achievement is the length of stay in day and residential treatment. Motto and Wilkins (1968) found significant gains in achievement for those who stayed the longest in a school program at a state mental

hospital. Hoffman and Nelson (1977) found similiar gains in achievement for students in a residential school. A student's academic progress may not be evident until the student displays a more positive attitude toward school which may take over a year in residential treatment (Mordock, 1987). However, there is evidence that keeping students in programs aimed at improving the behavior and learning of emotionally disturbed children, after their behavior has improved exclusively for the purpose of helping them academically, may endanger behavioral gains (Weinstein, 1971).

The length of stay at Randolph Academy was studied to see if it was related to changes in academic achievement. In addition it was anticipated that early entry-age students would profit more from the program than late entry-age students.

Achievement in educational environments for students with emotional and behavioral problems is also affected by family pathology and socioeconomic status. Students with long standing family problems displayed little improvement in academic achievement (Stedman, Costello, Gains, Villarreal, Abbott, and Duross, 1989), and those who had continued contact with a pathological family were more likely not to benefit from remedial efforts (Mordock, 1987). An improvement in academic achievement is associated with increased socioeconomic status (Mordock, 1987).

The goal of all of the educational programs discussed was to reintegrate their students back into their communities and into a less restrictive learning environment. Multi-agency support within the families, schools, and communities is essential for maintaining gains made by children during residential and day treatment and for lasting success (Epstein et al., 1994; Gemal, 1993; Lewis, 1982).

Method

Setting

Randolph Academy Union Free School District is a public, special act school district in western New York approved by the New York State Education Department to educate students ages 6 to 21 on a 12 month basis. The following description of

Randolph Academy is based on a comprehensive program analysis completed by the school district in the spring of 1997, when this study was conducted.

The population of students is continually changing throughout each academic year because of new placements and discharges. The district student enrollment usually ranges between 165 to 190 students. Table 1 indicates that a slightly higher percentage of these students are typically residents and over three quarters of the students are usually males. Less than one quarter of these students are in the elementary grades (see Table 1).

In order to accommodate the special needs of it's students, Randolph Academy has many special programs and related services: special class size staffing ratios (12-1-1 & 8-1-1), a school-wide behavior management program, a critical care classroom, the therapeutic animal program, group and individual counseling for all students, crisis intervention, and instruction in anger management.

The educational history of Randolph Academy students usually involves truancy, numerous suspensions, lack of parental involvement, and below grade level achievement. For some of the students, Randolph Academy is the last in a long line of less restrictive educational placements that have been utilized. A majority of students are placed through Family Court with the assistance of the Department of Social Services. There are students who have been adjudicated as juvenile delinquents and have the Probation Department or Division for Youth involved in their case. The percentage of day and residential students who have a criminal history is increasing steadily.

Sample

A random sample of 49 students who exited the program between September 5, 1995 and June 30, 1997 was used for this study. The group consisted of eleven females and 38 males. The age of entry ranged from seven years, eight months (92 months) to 16 years, three months (195 months) with an average entry age of 13 years, five months (161 months, SD = 25.13). The discharge age ranged from ten years (120 months) to 19 years,

three months (232 months) with an average discharge age of 15 years, six months (187 months, SD = 26.58). The length of stay at Randolph Academy ranged from seven months to six years, eight months (80 months) with the average being two years, one month (25 months). The sample population consisted of 14 day students, 23 residents, and twelve students who spent time as both residents and day students during their enrollment at Randolph Academy (e.g. a student may have began his stay as a resident of the CCI and then upon discharge from the CCI became a day student). At the time of entry into Randolph Academy, 17 students within the sample were in the elementary grades and 32 were in the secondary grades. At the time of discharge, seven students were graded as elementary and 42 as secondary. This sample reflected the distribution of the total population (see Table 1).

Procedure

Information for the current study was extracted from the psychoeducational files of the student participants. Each subject was given a number code to protect confidentiality. The variables collected and coded consisted of gender, entry age and grade, discharge age and grade, enrollment status (day student, resident, day/resident), pre and post reading standard scores, pre and post math standard scores, month and year the tests were administered, and length of stay. Entry age and discharge age were calculated by rounding the date of birth off to the nearest month (15 plus days was counted as a full month).

The achievement data presented in this study is based on individually administered achievement measures in the curricular areas of reading and math. These tests were administered by teachers at Randolph Academy. The tests utilized in assessing reading achievement were the Kaufman Test of Educational Achievement (KTEA; Kaufman & Kaufman, 1985), Peabody Individual Achievement Test- Revised (PIAT-R; Markwardt, 1989), and Woodcock Reading Mastery Tests- Revised (WRMT-R; Woodcock, 1987). Achievement in math was assessed using the Kaufman Test of

Educational Achievement (KTEA: Kaufman & Kaufman, 1985), Wechsler Individual Achievement Test (WIAT; Psychological Corporation, 1992), and KeyMath Diagnostic Arithmetic Test- Revised (KeyMath-R; Connolly, 1988). Because of the great variety of specific tests found in the records, the standard scores were collected. The standard scores obtained are based on a normal distribution with a mean of 100 and a standard deviation of 15. Standard scores allow evaluation of a person's performance relative to their peers provided by the normative sample (Shaugnessy & Zechmeister, 1994). Students were typically assessed within the first three months of enrolling into Randolph Academy and again on a yearly basis. Their final assessment was to be conducted prior to discharge.

For purposes of this study, the first and final assessment scores available in the files were collected. The interval of time between these scores is not always consistent with the student's length of stay at Randolph Academy. For example, a student may have spent 17 months at Randolph Academy, yet the length of time between their first and final reading and math assessment scores was twelve months. In addition, the interval of time between a student's first and final reading test administrations was not always compatible with the interval of time between their first and final math test administrations as recorded in the files. For example, the length of time between a subject's first and final reading assessment may have been 20 months, while the length of time between their first and final math assessment was twelve months. The average length of time between the first and final reading scores available in the files is 18.21 months (SD = 12.45); for math it was 18.19 months (SD = 12.00). Because of these inconsistencies length of stay was a better moderating variable than length of time between initial and final test administrations. There is a significantly strong correlation between length of stay and length of time between first and final reading test administrations (r = .91, n = 47) as well as between first and final math test administrations (r = .90, n = 48).

Results

Overall Effectiveness of the Program

This study investigated the overall effectiveness of the program at Randolph Academy by measuring individual change in academic achievement in the areas of reading and math. Academic achievement in reading was measured by using pre and post reading standard scores obtained on standardized, individually administered, achievement tests. The mean pre reading standard score was 81.88 (SD = 16.08, n = 48). The mean post reading standard score was 83.73 (SD = 16.78, n = 48). Pre and post math standard scores were obtained and also analyzed. The mean pre math standard score for the sample of students was 87.19 (SD = 15.18, n = 47). The mean post math standard score was 90.88 (SD = 14.89, n = 48). The sample of students made significant improvement in both academic areas. The mean reading standard score improvement from pre to post (M = 2.60, SD = 7.76, n = 47) was significantly greater than zero (t (46) = 2.29, p = .015 [1]) (see Table 2). The mean math standard score improvement (M = 3.53, SD = 10.11, n = 47) was significantly greater than zero (t (46) = 2.40, p = .01 [1]) (see Table 3). Students' standard scores improved for both reading and math.

Moderating Variables

Mean reading difference in standard score points was analyzed by enrollment status as shown in Table 2. The sample was categorized into three groups: day student, resident, or both a day student and resident. The mean reading difference for the day students was 2.23 (SD = 8.40, n = 13). The residents within the sample had a mean reading difference score of 1.73 (SD = 7.64, n = 22). The final grouping of students who had been residents and day students during their enrollment had a mean reading difference score of 4.58 (SD = 7.59, n = 12). Mean reading difference was also

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[1] all reported p values are one tailed

calculated by gender. The males had a mean reading difference of 3.14 (SD = 7.95, n = 37). The females had a smaller meanreading difference of 0.6 (SD = 7.03, n = 10).

Reading difference standard scores were analyzed with a two-way ANCOVA with enrollment status and gender as the between subjects factor and entry age and length of stay as covariates. Entry age was the only significant effect ($F(1, 42) = 5.94$, $p = .02$). As the age of entry into the program increased, the reading difference standard scores decreased.

Mean math difference in standard score points was analyzed by both enrollment status and gender as shown in Table 3. The day students within the sample had a mean math difference score of 4.08 (SD = 10.92, n = 13). The mean math difference score for the residents was 1.82 (SD = 10.34, n = 22). The students within the sample who spent time as both residents and day students during their enrollment achieved a mean math difference score of 6.08 (SD = 8.94, n = 12). The males within the sample had a mean math difference score of 4.11 (SD = 10.99, n = 36). The mean math difference score for the females was again smaller with a 1.64 (SD = 6.52, n = 11).

Math difference standard scores were analyzed with a two-way ANCOVA with enrollment status and gender as the between subjects factor and entry age and length of stay as covariates. No main or covaried effects were significant.

Discussion

This study explored a special act school district in western New York designed to educate children residing in a Child Care Institution and students with special needs from surrounding school districts. Students referred to Randolph Academy exhibit severe behavior problems and display numerous individual and family risk factors. These children have usually exhausted most less restrictive alternatives.

It was hypothesized that students at Randolph Academy would benefit from its treatment program. Treatment efficacy was measured by change in academic achievement as it is a good predictor of prosocial change and successful reintegration

into a regular education environment (Baenan et al., 1986; Glavin et al., 1971; Spellacy & Brown, 1984). The sample of students in the present study made significant gains relative to their agemates on the standardized achievement tests in the curricular areas of reading and math administered at the time of admission and again prior to discharge. This suggests that students at Randolph Academy responded well to the program and they began functioning at an increased rate of learning despite prior negative experiences in academic situations. Students benefited from the environment at Randolph Academy which provided smaller classroom settings, opportunities for academic success, rewards for prosocial behavior, and a wide array of support services. Although these students may have remained behind grade level academically, Randolph Academy's program was successful in reversing the downward trend in academic achievement and introducing a pattern of academic success consistent with other similar educational environments like day and residential school programs (Baenan et al., 1986; Epstein et al., 1994; Hoffman & Nelson, 1977; Lochman et al., 1988; Montgomery & Van Fleet, 1978; Mordock, 1987; Oestmann, 1994; Sayegh & Grizenko, 1991).

Individual student variables and how they moderated the efficacy of treatment were analyzed. It was hypothesized that students' who entered the school at a younger age would benefit most from the program at Randolph Academy. Previous research has demonstrated the need for early intervention when a child has a disability which affects their learning (Kirk, Gallagher, & Anastasiow, 1993; Oestmann, 1994). It has also become evident that students entering day and residential treatment in recent years have more serious issues than in the past, such as involvement in criminal activity (Lorandos, 1990; RAUFSD, 1997) which could possibly be avoided if they were given the services they required at an earlier age. The age of entry into the Randolph Academy did significantly affect reading achievement for the sample studied. Those who were youngest when they began their education at Randolph Academy improved the most in the academic area of reading as assessed by standardized achievement tests. The younger

entrants made more growth in relative standing to their peers nationwide. These results are consistent with previous evaluations of day treatment settings (Oestmann, 1994; Sayegh & Grizenko, 1997; Zimet & Farley, 1985), however they are discrepant from a similar study which evaluated change in academic achievement in a residential treatment center (Mordock, 1987). Age of entry into Randolph Academy did not significantly affect math achievement scores. Future research in this area should include an examination of classroom grades and teacher comments to confirm apparent achievement gains.

Other student variables believed to be related to change in academic achievement were length of stay at Randolph Academy and enrollment status (resident, day student, or both resident and day student). Those who remained in the program for the longest time did not make the most significant gains academically as hypothesized. Length of stay does not solely influence academic gain. This result is incongruous with previous findings (Hoffman & Nelson, 1977; Mordock, 1987; Motto& Wilkins, 1968; Stedman et al., 1989).

It was also hypothesized that the day students would benefit most from the program because their functioning was less impaired than the residents as evidenced by their less restrictive living situation. The enrollment status of the student was not found to be related to variation in academic achievement. This finding may be accounted for by several alternative explanations. It suggests that in spite of the different living circumstances of the students attending Randolph Academy, all students have the opportunity to profit from it's program. It also suggests that the learning, behavioral, and/or emotional impairments of the day students is at a similar level to those of the residents.

The results of the current study must be interpreted with caution. With any archival research, the data collected are dependent on the accuracy of the records analyzed. It was impossible to know if the standardized achievement tests were

accurately administered and scored. The results would also be more meaningful if the same standardized achievement test was administered at entry and follow-up. The use of the same standardized test ensures that the standard scores obtained at entry and follow-up are based on the same norming sample. Length of stay was a difficult variable to measure due to high rates of recidivism and changing enrollment status. The small sample size (n = 49) also diminishes confidence in these results. Considering the small number of students educated by Randolph Academy, it would take little effort and be advantageous to uniformly evaluate the level of academic change during each student's enrollment. By evaluating the effectiveness of its program, Randolph Academy could determine strengths and weaknesses and initiate any needed program changes.

Multiple directions for future research can be suggested as little is published on the efficacy of special act school districts or similar facilities. The present study sought to determine treatment efficacy by measurement of change in academic achievement. Due to the presenting problems of many of the students entering these special education facilities, future studies should also evaluate behavioral change to determine treatment efficacy. It would also be useful to assess how students are functioning behaviorally and academically after discharge. Will gains made at these facilities be continued in the home schools?

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Table 1

Demographic Descriptors of Two Difference Populations of Randolph Academy Students

	Spring 1997	Spring 1999	Sample
Total enrollment	170	185	49
Sex			
Male	82%	85%	78%
Female	18%	15%	22%
Enrollment status			
Resident	55%[a]	52%	57%[b]
Day student	45%[a]	48%	43%[b]
Grade			
Elementary	22%	22%	35%[c]
Secondary	78%	78%	65%[c]

Note. [a]n=183. [b]Twelve students in the sample were both residents and day students during their enrollment, therefore they were added to both day student and resident percentages. [c]grade at time of entry.

Table 2

Mean Reading Difference in Standard Score Points of Improvement

	n	M	SD
Total sample	47	2.60	7.76
Enrollment Status			
Day students	13	2.23	8.40
Residents	22	1.73	7.64
Day/ Resident	12	4.58	7.59
Sex			
Males	37	3.14	7.95
Females	10	0.6	7.03

Table 3

Mean Math Difference in Standard Score Points of Improvement

	n	M	SD
Total sample	47	3.53	10.11
Enrollment status			
Day students	13	4.08	10.92
Residents	22	1.82	10.34
Day/ Resident	12	6.08	8.94
Sex			
Males	36	4.11	10.99
Females	11	1.64	6.52