

CHAPTER 8

COHORT II: INCARCERATION, EDUCATIONAL ACHIEVEMENT, AND COMMUNITY REINTEGRATION

8.1 Introduction

Chapter 8 of the 2003 Juvenile Justice Educational Enhancement Program (JJEED) Annual reported findings from an analysis of 4,688 youths released from juvenile justice residential programs in FY2000-01. Included in the analysis was an examination of the effect of higher levels of academic achievement while in residential facilities on the likelihood of returning to school after release. The 2003 study found that students who returned to school upon release and students who earned diplomas while incarcerated were less likely to be rearrested following release, an additional indicator of successful reintegration into the community.

Since publishing the findings from the 2003 study, JJEED has sought to replicate the analysis with another cohort of juveniles released from residential facilities, the results of which are presented here. Given the positive findings for academic achievement in the models predicting return to school, we decided to further examine the linkage by again testing for an intervening effect of return to school on rearrest. Specifically, we explore a hypothesized causal chain linking academic achievement to desistance from delinquency (as indicated by no rearrest following release) through the intervening mechanism of return to school. The three research questions that evolved from the previous analysis and our hypothesized causal chain are as follows:

1. Does above average academic achievement while incarcerated increase the likelihood of youths returning to school following release?
2. Does returning to school with above average attendance reduce the likelihood of youths being rearrested following release?
3. Does earning a high school or a General Educational Development (GED) diploma while incarcerated reduce the likelihood of youths being rearrested following release?

This chapter is comprised of three subsequent sections. Section 8.2 describes the data sources and methods used to conduct the study. Section 8.3 presents the results of the analysis. The first set of results presented is from a descriptive analysis of students in a cohort of releases from July 1, 2001, and June 30, 2002. These figures not only describe the students in terms of their demographic characteristics and current commitment experience, they also allow for comparisons to the FY2000-01 cohort and any indications of changes in the population from one year to the next. This section also includes the results of the explanatory models of community reintegration as set forth in the research questions listed above. Section 8.4 provides a summary discussion of the results.

8.2 Data Sources and Methods

A cohort of 5,254 students released from juvenile justice residential programs in FY2001-02 was constructed using the Department of Education’s (DOE) Survey 5 data. Students enrolled under school numbers assigned to Department of Juvenile Justice (DJJ) residential programs were selected and then reviewed to ensure that they had a valid withdrawal code from the residential DJJ school within FY2001-02. The variables used from this database to construct the cohort are demographics, end of year school status, exceptional student education (ESE) status, high school credits earned, diplomas received, and school attendance.¹ Once the cohort was constructed using DOE data, it was then matched to data files obtained from the Florida Department of Law Enforcement (FDLE) (arrest) and JJEEP (program characteristics) data. Two years of data were used, including the year of releases (FY2001-02) and an additional follow-up year (FY2002-03). For details on how the data were compiled, cleaned, and matched to other existing state data and documentation of how variables were quantified, see Appendix D.

The cohort, which consists of releases from a residential program in FY2001-02, includes school follow-up information from one to two years post-release, depending on the time of year the students were released from a residential facility. Therefore, students may have returned to school anytime within one to two years of release. These eventual returns to school are defined as students who within the first semester of release went to another DJJ residential program, went to an aftercare program, or disappeared from the DOE data but returned to school by the end of the follow-up period in June 2003. Moreover, as a new year of state data is added to the cohort, the number of eventual returns to school and high school graduations are likely to increase.

Table 8.2-1 describes the two outcome measures of community reintegration used in the explanatory models described in Section 8.3.

Table 8.2-1: Outcome Variables Used in the Longitudinal Analysis

<i>Outcome Variables</i>	<i>Description</i>
Return to School Following Release	If the student returned to the public school within six months of DJJ release (0=No, 1=Yes).
Rearrest within Six Months of Release	If the student was arrested within six months of DJJ release (0=No, 1=Yes).

The variable “return to school following release” reflects whether or not a student released from a juvenile justice residential facility in FY2001-02 returned to a public school within

¹ It is possible for students to be committed to and released from more than one DJJ residential program within a year. Given the focus on individual outcomes and community reintegration trajectories, the unit of analysis here is students, and in the event that a student was released from multiple programs during the fiscal year, the last release was the one included in the cohort. Additionally, if a student had a high school diploma or its equivalent prior to being placed in a DJJ residential program and before the start of FY2001-02, then he/she would not have a record in the DOE school files for that year and would not be reported in the cohort.

one semester (six months) of release. Rearrest within six months of release indicates whether the releasee was arrested for a crime serious enough to warrant fingerprinting and submission of the arrest event to FDLE. For a more detailed description of arrest information, see Appendix E.

The explanatory variables included in the longitudinal (outcome) analysis are described in Table 8.2-2. These variables are used to describe the DJJ release cohort and are included in the statistical models detailed later. These variables were chosen because of their logical or theoretical likelihood of influencing the outcome variables described previously.

Table 8.2-2: Explanatory Variables Used in the Longitudinal Analysis

<i>Explanatory Variables</i>	<i>Description</i>
Age at DJJ Release	Age at DJJ release based on release date and date of birth
Race	White = 0, Non-White = 1
Gender	Male = 1, Female = 0
Length of Stay in DJJ	Number of months in DJJ residential facility
Total Educational Credits Earned in DJJ	Number of academic, vocational, and elective credits earned while in DJJ residential facilities during students' release commitment. This variable only includes credits earned in high school because elementary and middle school students do not earn credits.
Academic Credits Earned in DJJ	Number of academic credits earned while in the residential program prior to students' release from DJJ.
Vocational Credits Earned in DJJ	Number of vocational credits earned while in the residential program prior to students' release from DJJ.
Percentage of Academic Credits Earned in DJJ	Percentage of the total credits earned that were academic credits while in the residential program prior to students' release from DJJ.
Percentage of Vocational Credits Earned in DJJ	Percentage of the total credits earned that were vocational credits while in the residential program prior to students' release from DJJ.
Prior School Performance	Whether or not the student was in the appropriate grade level for his or her age (yes=0; no=1).
Prior Arrests	Number of arrest events reported to FDLE prior to DJJ release.
SWD (Cognitive Disability)	Students who were identified in DOE data as Educable Mentally Handicapped (EMH), Trainable Mentally Handicapped (TMH), or Profoundly Mentally Handicapped (PMH).
SWD (Behavioral Disability)	Students who were identified in DOE data as Emotionally Handicapped (EH) and Severely Emotionally Disturbed (SED).
SWD (Learning Disability)	Students who were identified in DOE data as Specific Learning Disabled (SLD).
SWD (Other)	Students who were identified in DOE data with any other disability.

<i>Explanatory Variables</i>	<i>Description</i>
Return to School and Attendance	If the student returned to the public school within one semester after DJJ release and the level of attendance at the school(s) (0=no return, 1=return and below average attendance, 2=return and above average attendance).
Program Security Level	The security level of the program assigned by DJJ. Includes low, moderate, high, and maximum.
Facility Size	Maximum capacity of DJJ residential facility that housed the student.
Public-Operated Program	If school district directly operated educational services (0=No, 1 =Yes).

The statistical method used to determine the effect of the explanatory variables on the outcome variables in this chapter is logistic regression, or logit, analysis. This technique is commonly used in scientific research when one is trying to understand the relationship, or effects, of multiple variables on an outcome that is dichotomous (i.e., yes or no categories). This technique provides information about the unique effect of each explanatory variable on the outcome variable: the relative effect of each variable on the outcome variable, holding all other variables in the model constant, and whether or not the unique effect of each control variable is statistically significant². In addition, the logit regression technique produces an “odds ratio,” which tells us the odds of success or the likelihood of our outcome occurring when a variable of interest is present and significant, with all other control variables being equal. These odds ratios can be converted to a percentage increase or decrease by subtracting the statistic from 1 and multiplying by 100 (e.g., $1 - .859 \times 100 = 14.1\%$ decrease).

8.3 Results

This section presents a descriptive overview of the characteristics and post-release outcomes of the 5, 254 students released from DJJ residential facilities that make up the FY2001-02 cohort and the facilities from which they were released.

Table 8.3-1 displays the demographic characteristics of the students released from DJJ residential facilities that comprise the FY2001-02 cohort.

² For this analysis, we use a statistical significance threshold of $p < .05$, which means that there is less than a five percent chance that the reported findings are not generalizable to a larger population.

Table 8.3-1: Characteristics of Students in the Cohort

	<i>Number</i>	<i>Percentage</i>
Gender		
Male	4,361	83%
Female	893	17%
Total	5,254	100%
Race		
White	2,509	48%
Black	2,306	44%
Hispanic (non-white)	364	7%
Other (non-white)	75	1%
Total	5,254	100%
Age		
Age at DJJ release	16.9 (mean)	7.6-22 (range)

The figures presented in Table 8.3-1 indicate very little change in the demographic characteristics of this population of juveniles from FY2000-01 to FY2001-02. The FY2001-02 cohort is slightly less male (83%) and slightly more White (48%) than the FY2000-01 cohort (86.6% and 44.9%, respectively). The average age of the students at the time of release from their residential commitment, however, is exactly the same for both years (16.9 years).

Table 8.3-2 displays summary statistics on age at release and length of confinement within the various DJJ residential program security levels. Note that our methodology was revised for this year's analysis with regard to the length of confinement variable. Whereas the results reported for the FY2000-01 cohort were calculated for all qualifying releases, the results for the FY2001-02 cohort were calculated only for those releases in which the student was confined for 60 days or more. This revision resulted in figures for length of confinement that are not comparable to those for the previous year's cohort.

Table 8.3-2: Ages and Lengths of Stay by Program Security Level

Security Level	n	Age at Release		Length of Stay (in months)	
		Mean	Range	Mean	Range
Low	695 (13%)	16.2	10.6-19	15	2-30
Moderate	2,982 (57%)	16.7	7.6-20	12	2-34
High	1,445 (28%)	17.4	7.7-22	14	2-36
Maximum	132 (3%)	17.9	13.7-20	18	3-29
Total	5,254 (100%)	16.9	7.6-22	13	2-36

n=number of students

As found for the FY2000-01 cohort, the majority (57%) of students in the FY2001-02 cohort were released from moderate security facilities. The distribution of students across the other three security levels remained fairly constant as well, with 28% of students being released from high security facilities (compared to 28% for FY2000-01 cohort), 13% from low security programs (compared to 12% for FY2000-01 cohort), and 3% of the students from maximum-security programs (compared to 2% for FY2000-01 cohort). The mean age by security level changed by less than 0.2 years for any given category, and, as noted for the previous year’s cohort, the age of the juveniles at release increases with increasing levels of facility security.

Table 8.3-3 displays the percentage of the various types of educational credits earned by youths while incarcerated and the average number of credits earned per student. Younger students enrolled in elementary and middle school grades do not earn credits. Therefore, the number of students earning credits is based on high school students who were enrolled in credit bearing courses.

Table 8.3-3: High School Credits Earned While in DJJ Residential Programs

<i>Type of Credits Earned in DJJ</i>	<i>Number of Students Who Earned Credits</i>	<i>Percentage of Credits Earned</i>	<i>Average Credits Earned per Student</i>
Total Credits	2,914	100	5.3
Academic Credits	2,599	51	3.0
Elective Credits	2,549	34	2.0
Vocational Credits	1,660	15	1.4

Note. This table includes only students who earned credits. Total credits do not equal the sum of the three types because students can earn more than one type of credit.

Fifty-six percent of the cohort earned some combination of high school credits while incarcerated. As stated previously, credits can be calculated only on students enrolled in high school credit bearing courses. Therefore, elementary and middle school students are not included in these data. Table 8.3-3 shows that, on average, students earned 5.3 high school credits while incarcerated. Academic credits included any courses completed in English, math, social studies, and science. Academic credits were the most prevalent type with 51% of the credits earned being of this type, at an average rate of 3.0 academic credits per student. Elective credits (34%) were the next most common, at an average rate of 2.0 elective credits per student. Vocational credits were the least prevalent, comprising only 15% of the credits earned by students, at an average rate of 1.4 vocational credits per student.

Table 8.3-4 provides information about the level of enrollment, attendance, and absence in public school for the 2,009 students in the cohort who returned to school within one semester of release.

Table 8.3-4: Attendance in Public Schools After Release

	<i>Average School Days per Student</i>	<i>Percentage of School Days per Student</i>
Present	85	83%
Absent	17	17%
Enrolled	102	100%

n=2,009

These data show that, for the 2,009 students (38% of the cohort) who returned to school within one semester, the average length of enrollment was 102 school days. On average, students who returned to school were present 83% of the days and absent 17% of the days they were enrolled in school.

Table 8.3-5 provides information about the types of disabilities for students in the cohort who were reported as students with disabilities.

Table 8.3-5: Type of Disability for Students with Disabilities

	<i>Number</i>	<i>Percentage of Total Cohort</i>	<i>Percentage of Students with Disabilities</i>
Emotional & Behavioral Disability	972	19	51%
Learning Disability	706	13	37%
Cognitive Disability	162	3	9%
Other	61	1	3%
Total	1,901	36	100%

Note. Total percentages may not add to 100 due to rounding. *Other* includes Speech Impaired, Language Impaired, Deaf or Hard of Hearing, Hospital Homebound, and other Health Impaired.

Table 8.3-5 shows that 35% of the cohort was diagnosed with some type of cognitive, behavioral, or learning disability, and 1% with some other disability. The most common disability identified was behavioral in nature, with 19% of the cohort receiving this form of diagnosis. This diagnosis accounted for 51% of the students with some type of disability. The next most common disability identified was for learning (13% of the cohort and 37% of those with a disability), and the third most common was a cognitive disability (3% of the cohort and 9% of those with a disability).

Table 8.3-6 provides information about the DJJ residential programs from which students were released, including security level, educational provider, facility size, and the quality assurance scores received.

Table 8.3-6: Characteristics of Department of Juvenile Justice (DJJ) Residential Programs From Which Students Were Released

<i>Number of Programs=119</i>	<i>Number of Programs</i>	<i>Number of Students</i>	<i>Percentage of Programs</i>	<i>Percentage of Students</i>
Low Security	17	695	14%	13%
Moderate Security	74	2,982	62%	57%
High Security	24	1,445	20%	28%
Maximum Security	4	132	3%	3%
Total	119	5,254	99%	101%
Facility Size	91 (mean)		7-350 (range)	
Length of Stay (in months)	6 (mean)		0-36 (range)	
Average Student to Teacher Ratio	13.0 (mean)		6-22 (range)	
Maximum Student to Teacher Ratio	15.4 (mean)		5.5-30 (range)	
Educational Services Provided by School District	73	3,035	61%	58%
Educational Services Provided by Private Providers	43	2,177	36%	41%
Other – governmental	1	21	1%	0.4%
Data missing	2	21	2%	0.4%
Total	119	5,254	100%	100%

Note. Total percentages may not add to 100 due to rounding.

Table 8.3-6 illustrates that the majority of the 119 programs in which the cohort of releases served were moderate security facilities (62%), and 57% of the students were released from these moderate security level programs. Another 14% of the programs and 13% of the students were released from low security facilities. Twenty percent of the facilities and 28% of the students were released from high security programs. Three percent of the programs were maximum risk facilities, and 3% of the students were released from maximum risk facilities. The majority of programs (73%) and students (58%) were released from DJJ facilities in which the educational services were provided by the public school district rather than by a private educational provider.

Table 8.3-7 presents information about the releases in terms of the outcome measures. These measures include the number and percentage of students returning to school after release and frequency of earning diplomas of various types while incarcerated.

Table 8.3-7: Descriptive Statistics on Outcome Measures

<i>Return to School</i>	<i>Number</i>	<i>Percentage</i>
Return to school within one semester (6 mos.)	2,009	38%
Return to school within 12 months	2,204	42%
Total return to school	2,425	N/A
<i>Diploma</i>	<i>Number</i>	<i>Percentage</i>
Diploma earned prior to release	381	7%
Standard diploma	183	48%
Special diploma	38	10%
General Educational Development (GED) diploma	160	42%
Diploma in subsequent DJJ residential program	98	2%
Standard diploma	31	32%
Special diploma	3	3%
GED diploma	64	65%
Diploma after return to public school	197	4%
Standard diploma	93	47%
Special diploma	34	17%
GED diploma	70	36%
Total Diplomas (while incarcerated or within 1 year of release)	676	12%
Standard diploma	307	45%
Special diploma	75	11%
GED diploma	294	43%

As reflected in Table 8.3-7, of the 5,254 students in the cohort, 38% returned to school within one semester of release, and 42% enrolled in school within 12 months.

In terms of diplomas earned, 381 students, or seven percent of the cohort, earned a high school diploma or its equivalent while incarcerated in a DJJ residential program; approximately half of these were standard high school diplomas, with GED diplomas accounting for 42%. There were an additional 197 students (four percent of the cohort) who returned to public school after release and earned a high school diploma or its equivalent and an additional 98 who were recommitted to DJJ and subsequently earned a diploma or its equivalent in the DJJ residential educational program. Of those students who earned a diploma after release, 45% earned a GED diploma, 42% earned a standard diploma, and the remaining 13% earned a special high school diploma.

Academic Achievement while Incarcerated and Community Reintegration Outcomes

The following tables present the results of our explanatory models of community reintegration, which address several questions relating to the effect of academic achievement while incarcerated on two outcome measures: return to school and rearrest after release from DJJ. We first present the results of an explanatory model of academic achievement to examine its effect on return to school.

Academic Achievement and Return to School

The results presented in Table 8.3-8 address the question of whether higher levels of academic achievement while incarcerated increase the likelihood of youths returning to school following release, controlling for known predictors of successful reintegration into the community.

Table 8.3-8: Academic Achievement and Likelihood of Returning to School Within Six Months of Release: Logistic Regression Models (High School-level Students Only)

<i>Explanatory Variables</i>	<i>Maximum-Likelihood Coefficient (B)</i>	<i>Odds Ratio</i>
Academic Achievement	0.188*	1.207
Below grade level	-0.902*	0.405
Age at Release	-0.753*	0.471
Race (Non-White)	0.273*	1.313
Male	0.030	1.031
Cognitive Disability	0.826*	2.283
Emotional & Behavioral Disability	0.321*	1.379
Learning Disability	0.312*	1.366
Program Security Level (Maximum/High)	-0.105	0.901
Number of prior arrests	-0.010	0.990
Arrest within 6 months of release	0.002	1.002
Length of Stay	-0.002	0.998
Facility Size	-0.002*	0.998
Public-Operated Program	-0.029	0.971
N	3,793	

*p<.05.

The results in Table 8.3-8 show that for students attempting high school credits in residential programs, the higher their levels of academic achievement while in that program, the greater their likelihood of returning to public school after release. In the previous study of the FY2000-01 cohort, academic achievement was also found to have a positive and statistically significant effect on the likelihood of a student returning to school, with students with above average academic achievement 58% more likely than those with below average achievement to return to school within one semester of release. For the current analysis, using the continuous measure of academic achievement rather than last year's above/below average distinction, the interpretation of the results is slightly different. The figures presented here indicate that for every unit (z-score) increase in the number and proportion of academic credits earned in the program, the likelihood of returning to school increases by 21%, even when controlling for the other individual and program-level factors that predict return to school.

Academic Achievement, Return to School, Attendance, and Rearrest

The final two research questions are addressed in the models presented in Tables 8.3-9 and 8.3-10. These questions refer to our second measure of community reintegration, rearrest following release, and the effects of earning a high school diploma or a GED diploma while incarcerated and returning to school with above average attendance on that outcome.

The second explanatory variable of interest, returning to school and level of attendance, was measured dichotomously as return to school with above-average attendance vs. no return to school or return to school with below average attendance. Table 8.3-9 shows the results for that and the control variables on the likelihood of rearrest within six months of release.

Table 8.3-9: Return to School with Above Average Attendance and Likelihood of Rearrest Within Six Months of Release: Logistic Regression Models

<i>Explanatory Variables</i>	<i>Maximum-Likelihood Coefficient (B)</i>	<i>Odds Ratio</i>
Return to School with Above Average Attendance	-0.831*	0.436
Below grade level	-0.123	0.884
Age at Release	0.012	1.012
Race (Non-White)	0.299*	1.349
Male	0.764*	2.147
Cognitive Disability	-0.217	0.805
Emotional & Behavior Disability	-0.038	0.962
Learning Disability	-0.066	0.936
Program Security Level (Maximum/High)	0.033	1.034
Number of prior arrests	0.190*	1.209
Length of Stay	0.002	1.002
Facility Size	0.000	1.000
Public-Operated Program	-0.000	1.000
N	4,869	

*p<.05.

The figures presented in Table 8.3-9 indicate that, after controlling for several other factors, students released from DJJ residential facilities were significantly less likely (56% less likely) to be rearrested after release if they returned to school and had high levels of attendance. Besides race and gender, the number of prior arrests was the only additional significant predictor of arrest within six months of release.

Table 8.3-10 examines the relationship between diplomas earned while incarcerated and the likelihood of rearrest within six months of release from a DJJ residential facility. This analysis only includes students who received their high school diploma or its equivalent while enrolled in a DJJ residential school and a comparison group composed of students aged 16 or older who did not return to school. From JJEEP data collected during QA reviews, approximately 3.5% of residential students have already earned their diplomas prior to being placed in a residential program. Because these students cannot be identified in DOE student data, they are not included in this analysis. Because students under the age of 16 are not eligible to receive a high school diploma or a GED diploma, the analysis only uses students who were at least 16 years of age at the time of release. Further, since students who return to school immediately upon release are still working toward a high school diploma, the analysis compares students who received a high school diploma or its equivalent to those students who did not earn a diploma or return to school within one semester of release.

Table 8.3-10: Academic Achievement (earning a diploma) and Likelihood of Rearrest Within Six Months of Release: Logistic Regression Models

<i>Explanatory Variables</i>	<i>Maximum-Likelihood Coefficient (B)</i>	<i>Odds Ratio</i>
Diploma earned while incarcerated	-0.084	0.919
Age at Release	0.285*	1.329
Race (Non-White)	0.284*	1.328
Male	0.904*	2.470
Cognitive Disability	-0.562	0.570
Emotional & Behavioral Disability	0.006	1.006
Learning Disability	0.058	1.060
Program Security Level (Maximum/High)	-0.027	0.973
Number of prior arrests	0.185*	1.203
Length of Stay	-0.006	0.994
Facility Size	0.001	1.001
Public-Operated Program	0.098	1.102
N	2,396	

*p<.05.

The findings presented in Table 8.3-10 indicate that while earning a diploma or its equivalent reduces the likelihood of rearrest within six months of release, the effect is not statistically significant when controlling for the other explanatory variables in the model. This finding is inconsistent with that for the FY2000-01 cohort, which indicated a statistically significant effect of earning a diploma on rearrest.

8.4 Summary Discussion

The findings from this analysis of academic achievement and post-release outcomes demonstrate that high academic achievement while incarcerated is an important factor in the successful reintegration process of juveniles released from residential facilities. Academic achievement has a strong, positive effect on the likelihood of a student returning to public school after release, and, according to our findings, returning to school and maintaining above-average attendance significantly reduces the likelihood of future rearrest.

The above analysis was guided by three research questions:

1. Does above average academic achievement while incarcerated increase the likelihood of youths returning to school following release?
2. Does returning to school with above average attendance reduce the likelihood of youths being rearrested following release?
3. Does earning a high school diploma or a GED diploma while incarcerated reduce the likelihood of youths being rearrested following release?

Specifically regarding these questions, we found the following:

- Higher levels of academic achievement while incarcerated significantly increased the likelihood that a student would return to school within six months of release. In fact, students with above average academic achievement while incarcerated were 21% more likely to return to school following release.
- Students who returned to school upon release and maintained above average attendance levels were significantly less likely to be rearrested. In fact, these students were 56% less likely to be rearrested as compared to students who did not return to school following release.
- Students who earned a diploma while incarcerated were less likely to be rearrested following release from a residential program; however this relationship was not significant.

As far as replicating the findings of JJEEP's previous community integration study is concerned, the findings presented here provide further empirical support for the academic achievement and successful community reintegration linkage. These findings not only have implications for individual-level theories of crime and delinquency but also for policies related to educational programming for delinquent and at-risk youths. A student's positive academic achievement while in residential programs has a significant impact on the successful community reintegration of the student upon release. As a result, it is clear that efforts to monitor and review those educational programs and to develop and test "best practices" for juvenile justice education should continue and be replicated in each of the other 49 states.

