An Evaluation of a Cultural Arts Program for
Youth in a Juvenile Justice Program: Technical Report

(working paper)

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TECHNICAL REPORT

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EXECUTIVE SUMMARY

Arts programming has been touted as a way for youth to learn new skills that will increase youth resilience in stressful environments; improve social and emotional skills and abilities, as well as possibly increase cognitive functions. While there have been a number of studies conducted to examine these relationships, most had a research design that had a number of confounding factors. This study was one of the few that had a comparison group that provided for a stronger research design. The participants attended a program that served as a diversion program for arrested youth and a prevention program for family, friends, and neighbors, of the arrested youth. Previous analyses indicated a pre post difference in mental health and social skills and an impact analysis indicated a very low recidivism rate for the participants relative to other programs.

The findings of this study, in which trends, but few significant results were seen, indicated that art programming's impact on social skills was modest when participating in this relatively short 8 week program. A few significant results were observed that indicated the program had more impact on females. Other perspectives should be examined in order to develop a model of the impact of art programming on a youth's long-term behavior.

PART 1: THE PRODIGY PROGRAM

An Evaluation of a Cultural Arts Program for Youth in a Juvenile Justice Program

Introduction

The Prodigy Cultural Arts Program is a free, year-round, researched-based program that brings high quality arts instruction to over 4,000 low-income youth, ages 7-17, in thirty neighborhoods in seven Florida counties. The program is offered in 90 minute sessions after school and on Saturdays. Prodigy is funded by the Florida Department of Juvenile Justice as a prevention and diversion program for youth. Thirty percent of participants in Prodigy are first time non-violent offenders who are "diverted" to the program in lieu of going through the court system. The remaining 70% of Prodigy youth come from the neighborhoods adjacent to the Prodigy sites and frequently include family and friends of other participants. Prodigy youth gain artistic skills as well as self-regulation skills and demonstrate a statistically significant reduction in behavioral and mental health problems. This report will explain the history, theoretical foundation, specific operations, as well as the accumulated research findings on the program.

Arts Programs

Arts programs have been operating in various formats in the Criminal Justice system since the 1960's when prisons utilized art as part of a rehabilitative strategy. Currently, there are few rigorous studies regarding art programs, however initial evaluations have found improved art and life skills, prosocial and school attitudes, and increased academic achievement in youth after completion of arts programs (Catterall, 1999; Catterall & Waldorf, 1999; Clawson and Coolbaugh, 2001; Heath and Roach, 1999; Hodges & O'Connell, 2005; Winner & Hetland, 2000). In addition, some arts programs have also shown success in the reduction of mental health symptoms, like depression, anxiety, and disruptive behaviors (Choi, Lee, and Lim, 2008; Jeong,

Hong, Lee, and Park, 2005; Kisiel, Blaustein, Spinazzola, Schmidt, Zucker, & van der Kolk, 2006).

For example, Jeong, Lee, and Park (2005) found dance reduced symptoms of somatization, depression, anxiety, hostility, obsessive-compulsions, and psychosis in adolescents, while, a study regarding music intervention found improvement in adults' depression and anxiety symptoms (Choi, Lee, and Lim, 2008). Artistic skill development has also been particularly helpful in reducing anger, violence, and mental health symptoms (Howell, 2003; Roe-Sepowitz and Thyer, 2004). In addition, Kisiel et al. (2006) conducted a program evaluation ($n = 140$) on the Urban Improv program; a theater based, youth violence prevention program. After utilizing a pre-posttest control group design, researchers found significant reductions in aggressive/disruptive behaviors, increased pro-social skills, academic attention and engagement in the group attending the program.

Participation in art has been associated with improvements in: math skills (Vaugh, 2000), spatial reasoning Heltland, 2000); and other cognitive and social skills (Caterall, 2002; also see compendium of research, Deasy, 2002; Bilhartz, Bruhn, & Olson, 2000).

Several large scale studies have supported a positive association between the arts programming and prosocial behaviors across settings. One of the original attempts at such a broad study was a survey of hundreds of art programs across the country (Stone, Bikson, Moini, & McArthur, 1998; Stone, McArthur, Law, Moini, 1997). They reported finding positive associations between prosocial behaviors and community arts programming. Specifically, structured programs were associated with the positive changes in prosocial behaviors, while programs not as systematic did not show this relationship.

More recently, Wright and colleagues have written several articles analyzing results of a quasi-experimental design on arts intervention program (Wright, Lindsay, Allaggia, & Sheel, 2006; Wright, Lindsay, Offord, Duku, Rowe, & Ellenbogen, 2006). Five programs were established at a variety of geographically and demographically diverse sites across Canada – urban, rural, indigenous, and immigrant. Analyses showed positive changes among the participating youth in categories of prosocial behaviors and skills such as problem solving. These changes were significantly different from a comparison group identified through a propensity matching design. A follow up study showed similar findings for a site that was implemented within the United States, providing support for cross-cultural consistency in the results (Lindsay, Wright, Rowe, & Duku, 2009).

Research in the area of arts programming is still in its infancy, as most studies are based on small samples and mainly employ qualitative methods. However, initial evidence warrants further investigation. If both self-regulation skills intervention and arts programs show promise for improving disruptive behaviors, reducing mental health symptoms, and improving academic performance and self-efficacy, could synthesizing these two promising modalities constitute a potent and effective intervention for at-risk youth? The Prodigy program integrates these two promising modalities for at-risk youth in an after school program, in an effort to reduce recidivism and mental health problems. A current evaluation of the Prodigy Program can be found in Part Two of this report.

History of Prodigy Program

The Prodigy Cultural Arts Program, funded by the Florida Department of Juvenile Justice (DJJ), has been operating in the West Central Florida region since 2001-2002. The University of South Florida, School of Social Work (USF) began managing the program with the key

community-based partner, the University Area Community Development Corporation (UACDC) in 2003. As of fiscal year 2009, UACDC took on the lead role with USF providing the research and training required for the project.

Community and neighborhood-based Prodigy programs are administered in collaboration with 11 nonprofit organizations ranging from churches, to YMCA's to community arts organizations. The locations are communities and neighborhoods in seven counties in Central Florida with high percentages of youth at risk for juvenile delinquency. The DJJ funding has two key contracted outcome measures: a non-recidivism rate of 80% after 1 year (previously the contracted time period was 6 months) and a program completion rate of 75%. On both measures, Prodigy has repeatedly performed better than these goals.

Theoretical Foundation

Prodigy fits within a broadly defined Positive Youth Development perspective (PYD). The PYD model is a comprehensive framework for examining adolescent development that grew in direct opposition to the deficit-based approach, which tended to focus on problems and weaknesses and how to ameliorate them. The PYD approach suggests that given the right mix of social resources, most youth will flourish and develop into healthy adults (Butts, Mayer, & Ruth, 2005). The model, which has been adopted by many youth programs, encourages a holistic approach to working with youth. Much of the modern research can be traced to Rutter (e.g. 1987) and now includes Catalano's work on youth assets (e.g. Catalano, Berglund, Ryan, Lonczak, & Hawkins, 2004) among many others.
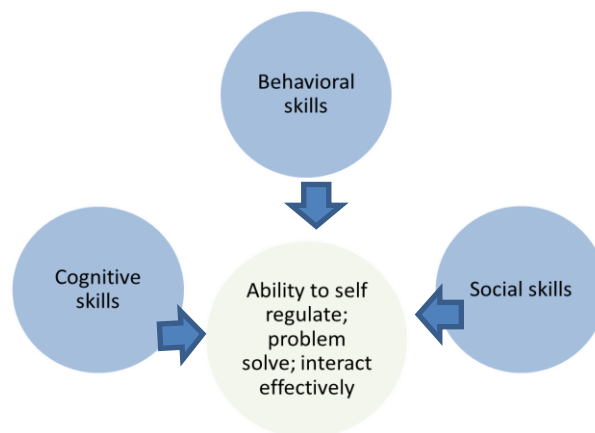
Programs which are based on the positive youth development model share three basic characteristics (Roth, 2004):

- Promote positive attitudes and behavior, even when seeking to prevent problem behavior.

- Provide formal and informal opportunities for youth to nurture their interests and talents, learn new skills, and gain a sense of personal or group recognition.

- Create an atmosphere of safety and hope, encouraging relationships with prosocial, caring adults.

The Prodigy program addresses all three of these characteristics in that it enhances positive attitudes and teaches self-regulatory skills in an effort to reduce and/or prevent crime and violence. It also educates youth about the arts and encourages their curiosity and talents in this area. Finally, the safe and engaging Master artists nurture relationships and mentoring opportunities in a safe, positive environment.

Figure 1. Simplified Prodigy Model Characterizing the Skills Taught and Abilities Learned

Operational Aspects

Prodigy operates as a prevention and diversion program. As a diversion program, Prodigy is an alternative for first-time non-violent, juvenile offenders. Rather than being remanded to court after an arrest, the youth are given the opportunity (determined by the State Attorney's Office) to attend the Prodigy program. The youth who agree to attend Prodigy also receive case

management through Bay Area Youth Services (BAYS), an agency that has expertise in juvenile justice case management.

Referred youth attend the arts program two times per week for 90 minute sessions for a minimum of 8 weeks (24 hours) and are encouraged to stay beyond the required time. Some youth remain in the program, but most do not remain beyond their required time.

The program is also open to any youth in the community who want to participate as long as they are between the ages of 7 and 17. The majority of the participants of Prodigy are considered at-risk youth (prevention) since they reside in the low-income, high crime neighborhoods where the program is delivered and have not had any formal contact with the Juvenile Justice System (Sampson, Morenoff, & Gannon-Rowley, 2002). Both diversion and prevention youth participate in classes together. Even though diversion youth have had contact with the Juvenile Justice System, they have not been found to be significantly different from the prevention youth on any of the assessed variables (Rapp-Paglicci, Stewart, & Rowe, 2009; Stewart, Rapp-Paglicci, & Rowe, 2009). The classes are taught by professional artists. Prior research has suggested that the relationship with artists tends, in this type of program, to provide more benefits for the youth (Stone, McArthur, Law, & Moini, 1997; Stone, Bikson, Moini, & McArthur, 1998; Wright, Lindsay, Allaggia, & Sheel, 2006; Wright, Lindsay, Offord, Duku, Rowe, & Ellenbogen, 2006).

Program Schedule

Prodigy programs operate year round, after-school (though there are some Saturday classes), in eight-week cycles. Entry into the program, however, can take place anytime within the 8 weeks for the community-based program. In other words, youth are rotated into classes and rotated out as they complete their 8 week sessions. Classes are held twice a week for ninety

minutes per class and are divided into two groups, by ages 7-12 and 13-17. Youth may enroll for more than one class at a time and there is no limitation as to the length of time a youth may participate in Prodigy, except at sites with space limitations. Diversion and Prevention youth are combined together in classes. Diversion youth are required to attend one eight-week cycle of classes. Prevention youth have no requirement related to duration in the program, though most stay for longer periods of time.

Upon entry into the program, youth and their parents attend an orientation session. It is during this session that the pre-assessments are collected from parent or caregiver and from the youth. Then the older youth (ages 13 to 17) participate in a workshop. This is a highly interactive session taught by trained staff, with a focus on teaching the self-regulation skills of communication, anger management, and problem-solving. The workshop also acts as a pretreatment to assist in preparing youth to transition into the art classes. Structured transitions have been associated with successful entry into new programs, as have pre-treatments (Harlow, 2005; Rapp-Paglicci & Savon, 2009).

The core of the program takes place in classroom studios where the youth learn artistic processes and work on a variety of community-themed art projects for the next six weeks. Class size is a ratio of approximately 10 students to one adult. Not all content is offered at each site, but across the entire program there are courses in visual arts (painting, drawing, animation) and the performing arts (music, theater, writing, and dance). Youth are allowed their choice of art class, based on availability at their designated site.

A second workshop, held near the end of each eight-week art program, recaps and reinforces the lessons experienced in the classroom and the first workshop, with an emphasis on the self-regulation skills. Students completing the program cycle are interacting with new

incoming students within these workshops, thus putting the experienced youth in the role of a peer mentor.

Post data are collected at the end of week 8 from both the youth and their parent. This completes the program cycle.

Prodigy Alternative to School Suspension (PASS) program. The Prodigy Alternative to School Suspension (PASS) program was established to allow for a comparison group. The program was developed to serve students who had been suspended from school at least twice. During the time this program was developed, most students who were suspended were also subject to arrest due to a 'zero-tolerance' policy implemented within the school district. As the Prodigy program was designed to serve arrested youth, this placed the suspended students into the same category. While the students who entered the PASS program were on an 8 week long wait list in order to serve as a comparison group, the students did then receive in-school services modeled on the Prodigy program.

PART 2: CURRENT RESEARCH

PART TWO: CURRENT RESEARCH

Research Questions and Hypotheses

Hypothesis One: Youth who have participated in the art intervention programming will show significant positive changes in mental health and social skills relative to youth who have not participated in art intervention programming.

Hypothesis one is the primary research question addressed in this report. It concerns the effectiveness of art programming at the programmatic level. It also addresses the question of art programming, generally, when data are collapsed across teachers and settings. This is a question that has seen limited research. If positive, it makes the utilization of art programming as a means of impacting youth development more viable and thus more acceptable to government agencies and funders.

Hypotheses Two and Three: In order to more fully understand who may benefit most from art programming, additional analyses were conducted that examined the differences in outcomes based on the individual characteristics of the participants. The research questions investigated through these analyses ask whether individual characteristics are related to any improvement in mental health symptoms and social skills. These characteristics include demographic variables such as age, gender, race, and ethnicity.

These specific research questions asked were:

1. Do demographic characteristics influence the outcomes produced in the Prodigy/PASS art programming?

2. What mental health variables and social skills are more likely to be positively influenced by the art programming and which ones are less likely?

Based on these research questions, we hypothesized that there would be significant differences based on demographic characteristics (e.g., race, gender and age) on the outcomes produced in the Prodigy/Pass arts Programming. We also hypothesized that mental health variables and social skills would be differentially influenced by the Prodigy/PASS arts programming.

Significance

As one of the few studies of art programming that have utilized a comparison group, the analyses will provide one of the most robust studies to date on its impact. It was designed to identify the impact on the individual's social skills and clinical characteristics. Assuming the hypothesized relationships are found, this will create a more substantive body of evidence than currently exists. The value of this is to both the scientific and the policy-making community.

From the research perspective, a broad fundamental question concerning the potential of art programming will be directly addressed. If the hypothesis is sustained, it could be stated that art programming as implemented in the Prodigy programs is significantly better than no programming. This will have near-term practical value that may have a significant impact on practices in youth intervention programming.

Program Fidelity[1]

To help insure a consistent quality of instructor, a structured interview system (SIS) was developed that identified key characteristics related to the social and learning environment of the youth. The SIS addressed management of youth and experience in managing situations that were considered important to maintaining an effective classroom environment. The tool was validated

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[1] The categories reviewed in this section are based on the review by the USF research team of best practices (Miller, J. & Rowe, W. 2009. Cracking the black box: What makes and Arts intervention program work? Best Practices in Mental Health, An International Journal, 5 (1), p. 52-64.)

through an internal review as being predictive of instructors who score highly on performance evaluations.

Classroom Monitoring

The Classroom Observation Tool (COT) was developed to consistently observe instructors and their sessions to evaluate their consistency with the curriculum, assess their interaction with the youth, and provide feedback for improvement. The COT results were compared with a performance evaluation form developed for the SIS. Strong convergence was seen with the classroom management sections of the performance appraisal and the COT.

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Methods

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Research Design

For the Prodigy program, no comparison group was allowed due to funder restrictions requiring the provision of services to all who were referred or enrolled. In order to address this, a program called Prodigy Alternative to School Suspension (PASS) program was established to allow for a comparison group. The program was developed to serve students who had been suspended from school at least twice. During the time this program was developed, most students who were suspended were also subject to arrest due to a 'zero-tolerance' policy implemented within the school district. As the Prodigy program was designed to serve arrested youth, this placed the suspended students into the same category.

In order to function as a comparison group, the students eligible for the PASS program were on a wait list prior to beginning the actual program. They had two assessments prior to beginning the program. Pre-tests occurred at time of registration for the PASS program and post-tests occurred prior to the start of the participation in the treatment group. To assure that the

waiting time was about eight weeks from entering the wait list, the time for the Prodigy program, enrollment for the subsequent cohort was stopped after a designated time.

Data Sources

Standardized measures were used that assessed arts intervention and control groups, pre and post, on social skills, mental health, risk behavior, and self-regulation skills. These included the following measures:

Arts Intervention. The independent variable was the Prodigy/PASS arts program that utilized instruction in either the performing or visual arts. This former included dance, music, Capoeira, or theater. The latter included painting, drawing, collaging, or clay modeling. The program was an eight week program conducted after school either at a community agency. The youth who participated had received two or more suspensions within the prior and/or current school year; and/or had been arrested; and/or lived in a neighborhood with high incidence of arrests and crime.

The Social Skills Improvement System (SSIS). The SSIS is a revision of the widely used Social Skills Rating System. This assessment was used to measure the pre-intervention – post-intervention changes in social skills. Subscales include communication, cooperation, assertion, responsibility, empathy, engagement, and self-control. Internal reliability ranges for .72 for the Assertion subscale to .94 for the Communication subscale. Validity has been demonstrated in normal and special needs populations (Gresham & Elliott, 2008).

Child Behavior Checklist (CBCL)-Youth Self-Report (YSR): The YSR is completed by youth (i.e., self-report) and is used to detect and assess mental health difficulties. The CBCL/6-18 has 118 items that describe specific behavioral and emotional problems in youth, plus two open-ended items for reporting additional problems. For quality control, parents rate

children's responses on the accuracy of multiple items regarding current and recent behaviors and activities. The YSR is completed by youth (i.e., self-report) and the CBCL, known for strong reliability and validity, is used to detect and assess mental health difficulties (Achenbach, 1991). For the purposes of this analysis the internalizing and externalizing behavior subscales were used.

The Aggression Questionnaire (AQ). The AQ is a revised version of the Buss-Durkee Hostility Inventory and measures aggression and anger. It has overall score and five scales: physical aggression, verbal aggression, anger, hostility, and indirect aggression. The scales have an alpha of .70 or higher and the overall scale has an alpha of .90. It has been in wide use as a measure for youth (Buss & Warren 2000).

Behavior Dysregulation Scale (BDS): The BDS is a 92-item measure that measures Dysregulation on three dimensions: Affective Dysregulation (28 items), Behavior Dysregulation (36 items), and Cognitive Dysregulation (28 items). Psychometric analyses, including Confirmatory Factor Analysis and Item Response Theory were conducted to demonstrate both reliability and validity of the measure. Results indicate psychometric soundness through examination of four samples (Mezzich, Tarter, Giancola, & Kirisci, 1991).

Social Problem Solving Inventory (SPSI). The SPSI is a widely used scale measure that assesses automatic process, problem orientation and problem-solving skills. Orientation has three subscales: cognitive, emotional, and behavioral. Problem-solving skills have subscales for Problem Identification, Alternative Generation, Consequence Prediction, and Implementation/Evaluation/Reorganization. The reliability is over .93 for the entire scale (Frauenknecht & Black, 2005).

Program Site Selection Process

Two sites were used to collect data for the intervention program. One was a dense urban setting set in a high crime/low income neighborhood. The other was in a lower density city within a largely rural county. Both sites were managed by a community development corporation. The participants were either referred by the juvenile justice system or were non-adjudicated youth from the same neighborhood as those who were adjudicated. The PASS program was conducted at two different middle schools that served a low income population in a high crime district.

<center>**Data Analysis**</center>

This study consisted of two groups, one from each of two programs, Prodigy and PASS. Participants in the Prodigy program were given the "arts intervention programming," and wait list participants in the PASS program served as our control group. The social skills and mental health assessments were measured before and after prevention treatment for participants in the Prodigy program. The assessments before prevention treatment are considered our pre-test and after prevention, our post-test. Similarly, these pre/post assessments of social skills and mental health were also given to participants in the control group.

The outcome measure is the social skills (e.g., SSIS) and mental health score (e.g., YSR-internalizing and externalizing behavior subscales). The primary hypothesis is that the change in the social skills and mental health score will be more positive for Prodigy participants compared to PASS participants. The second hypothesis is that the change in scores may be influenced by demographic characteristics. The social skills and mental health scores are analyzed based on different functions which are frequently referred to as domain scores. The third hypothesis is that changes in different domain scores may be influenced differently by demographic characteristics.

The social skills and mental health assessments were measured before and after prevention treatment for participants in the Prodigy program. The assessments before prevention treatment were our pre-test and after prevention, our post-test. These pre/post assessments of social skills and mental health were also given to participants in the control group.

The outcome measures were the social skills and mental health scores. The primary hypothesis was that the change in the social skills and mental health score were more positive for Prodigy participants compared to PASS participants. The second hypothesis was that change in scores may be influenced by demographic characteristics. The social skills and mental health scores were analyzed based on different functions which are frequently referred to as domain scores. The third hypothesis was that changes in different domain scores may be influenced differently by demographic characteristics.

Descriptive statistics were reported and demographic characteristics and social skills and mental health scores are presented for each program. The social skills and mental health scores were analyzed as continuous variables. The two-sample t-test is used to compare the pre-test scores between the two programs. Additional bivariate analyses were conducted to examine trends and within group pre-post differences.

All analyses were conducted using the statistical software is SPSS 20.0. Pre-post analyses compared various measures of mental health and social skills to evaluate if participation in the arts programming resulted in positive outcomes (i.e., decreased internalizing or externalizing behavior or increased social skills). For this level of analyses, a larger data set was utilized. A within-group analysis was conducted, which is relatively resilient to any individual differences effects – a common confounding issue facing between-groups analysis. As this second analyses is exploratory in nature, it will serve as the foundation for future model building involving more

sophisticated multivariate analyses (i.e., structural equation modeling). As the variables had

been selected for the pre-post assessments based on prior research, any that are found in this

analyses to produce a positive change in outcomes will be considered for inclusion in the model.

Descriptive statistics reported include the mean, standard deviation for continuous

variables; number and percentage for categorical variables. The demographic characteristics and

social skills and mental health scores are presented for each program. The two-sample t-test was

used to compare demographic characteristics variables between the two programs. The social

skills and mental health scores are analyzed as continuous variables. The two-sample t-test is

used to compare the pre-test scores between the two programs.

To test the primary study hypotheses, the analysis plan entailed the use of a Repeated

Measures MANOVA (RM MANOVA), where time (pre/post) and condition

(experimental/control) are compared for differences in the dependent measures (i.e., social skills

and mental health). This approach produces a general main effect for time (pre versus post

scores) independent of experimental condition. The experimental condition effect is similar to

an interaction effect in the univariate ANOVA model where we can evaluate if differences

between times were influenced by membership in either condition (experimental or control).

RM MANOVA, as opposed to a series of RM ANOVAs, was used to avoid having to

implement the Bonferroni adjustment, which would require the alpha (p<.05) to be divided by

the number of analyses. In this case, .05 / 5 different measures = alpha level of .01. Multivariate

analyses are used to reduce our risk of committing a Type II error. When sample size permitted,

groups were matched on the dependent measures and any other key demographic variables,

including, gender, race, and age, to be certain the two groups start as equivalent as possible.

Matching reduces the internal threat of regression towards the mean as well reduce the risk of a

selection bias. That is, the experimental and the comparison groups are more likely to be

equivalent. For all results, a p-value less than 0.05 was considered statistically significant.

Research Findings

Table 1. Sociodemographic Characteristics by Intervention and Control Group

PARAMETER	Control	Intervention	Over all
Age			
N	32	53	85
MEAN	12.69	14.92	14.08
SD	1.03	1.36	1.65
MEDIAN	13.00	15.00	14.00
Race			
All other	10 (29.41%)	30 (54.55%)	40 (44.94%)
African American	24 (70.59%)	25 (45.45%)	49 (55.06%)
Gender			
Female	6 (16.22%)	33 (63.46%)	39 (43.82%)
Male	31 (83.78%)	19 (36.54%)	50 (56.18%)
Family Income			
<= 25,000	12 (34.29%)	29 (69.05%)	41 (53.25%)
> 25,000	23 (65.71%)	13 (30.95%)	36 (46.75%)
Parents Education			
HS or Less	11 (36.67%)	20 (47.62%)	31 (43.06%)
More than HS	19 (63.33%)	22 (52.38%)	41 (56.94%)

Sample Description. The total sample consisted of 85 participants of which 53 were part

of the intervention group who participated in the Prodigy/PASS program (experimental group)

and 32 were part of the control group. The mean age of the intervention group was (M= 14.92,

sd=1.03) was slightly higher than the mean age of the control group (M=12.69, sd=1.36). About

45% (n=25) of the intervention group were African American compared to control group in

which 71% (n=24) were African American. The intervention group also had a higher percentage

of females (63%, n=33) compared to the control group (16%, n=6). A higher percentage of the

intervention group participants reported a lower annual family income (69%, n=29) and the

parents education as high school or less (48%, n=20) compared to the control group (37%,

n=11).

<div align="center">**Quantitative Findings**</div>

Hypothesis One

Hypothesis one was tested that posited that youth who participated in the Prodigy/PASS

program would report statistically significant higher levels social skills and mental health

improvement compared to youth who did not participate in the Prodigy/Pass Program. To test

hypothesis 1, a repeated measures ANOVA with condition (control or experimental) as a

between-factors covariate was conducted on a series of psychosocial measures (see Table 2). All

analyses demonstrated no significant differences between pre and post-tests (regardless of

condition) and no significant interaction between time and condition. Considering the low

sample sizes and the reported low post-hoc power (all observed post-hoc power less than .10)

and effect sizes (all η^2 less than 5%), any differences found would have needed to have been

substantial in order to achieve statistical significance at p<.05.

Table 2. *Means, Standard Deviations, and RM ANOVA Results for Hypothesis 1*

	Pre		Post			
	M	SD	M	SD	Time Effect	Time x Condition
Interaction						
Internalizing						
Control	12.51	6.14	12.57	5.44		
Experimental	11.14	6.40	11.30	7.24	$\lambda = 1.00$, F (85) = .04, p = .85	$\lambda = 1.00$, F (85) = .01, p = .93
Externalizing						
Control	18.92	8.69	19.25	9.99		
Experimental	19.58	7.47	20.10	8.89	$\lambda = 1.00$, F (82) = .37, p = .55	$\lambda = 1.00$, F (82) = .02, p = .89
Anxious-Depressed						
Control	6.94	4.07	6.75	3.59		
Experimental	6.80	4.49	7.02	5.16	$\lambda = 1.00$, F (84) = .00, p = .98	$\lambda = 1.00$, F (84) = .24, p = .63
Withdrawn-Depressed						
Control	12.51	6.14	12.57	5.44		
Experimental	11.14	6.40	11.30	7.24	$\lambda = 1.00$, F (85) = .04, p = .85	$\lambda = 1.00$, F (85) = .01, p = .93
Rule breaking						
Control	7.79	3.14	7.76	3.81		
Experimental	9.06	3.93	9.43	4.22	$\lambda = 1.00$, F (81) = .18, p = .67	$\lambda = 1.00$, F (81) = .25, p = .62
Aggressive Behavior						
Control	10.69	6.61	10.56	6.94		
Experimental	10.31	4.59	10.71	5.60	$\lambda = 1.00$, F (82) = .09, p = .76	$\lambda = 1.00$, F (852) = .34, p = .56
SPSI Total						
Control	81.20	30.03	80.55	25.16		
Experimental	72.35	25.24	74.88	27.38	$\lambda = 1.00$, F (61) b= .06, p = .81	$\lambda = 1.00$, F (61) = .17, p = .69

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Mauchly's Test of Sphericity was violated for each of these analyses (p<.05), indicating that there are significant differences between the variances of the differences. However, Mauchly's is typically only conducted with three of more repeated measures (we only used two). However, Mauchly's test is also likely skewed by the remarkably small sample sizes of the two conditions. Consequently, the analyses are still subject to the same scrutiny regarding sample size, assumptions of normalcy, and power regardless of Mauchly's results. Findings should underscore the need for future research – with adequate power – to address the exploratory findings uncovered in this study.

Hypotheses Two and Three

Hypotheses 2 and 3 were not testable for advance statistical modeling due to issues of sample size coupled with the myriad variables intended for the analyses. The following brief section will review the basic reasons as to why any inferential statistics with these sample sizes would be unacceptable. For a more thorough review, see Cohen (1988, 1992), Lenth (2001), or Hoenig and Heisey (2001).

Basically, large samples give more reliable results whereas small samples often leave the null hypothesis unchallenged (due to large samples better replicating the population). Statistical power is defined as the probability of rejecting the null hypothesis while the alternative hypothesis is true. Consequently, any preliminary inferential statistics were deemed inappropriate for hypotheses 2 and 3 for the following simple reasons:

1) The small overall sample size problem would be exacerbated by splitting the sample into smaller sub-samples based on the proposed demographic variables (such as gender or ethnicity).

2) By exacerbating the issue, the ability to infer findings to the population is even

   further diminished as error would produce 95% confidence interval bands (e.g.,

   obtained via bootstrapping) too wide to merit any consideration

3) The likelihood of a Type II error (supporting null when it should be rejected) is

   magnified because with such small cell sizes (some in the teens) any significant effect

   would need to be very large in order to be found statistically significant.

4) Even if said effect occurred, the small sample size and limited sampling pool from

   where participants were obtained would make any inferences to the overall

   population in question limited to non-existent.

Consequently, we felt it is best to not conduct advanced statistical analyses for hypotheses 2 and

Considering the unique and exploratory nature of the scope of our study, the general findings

(from hypothesis 1) coupled with any descriptive statistics of variables from hypotheses 2 and 3

and additional bivariate analyses that we present next provide a solid empirical foundation to

build subsequent studies (with adequate power/sample size) to address the critical questions

raised by our initial inquiry.

Bivariate Analyses

   Additional bivariate analyses using the Aggression Questionnaire, Behavioral

Dysregulation Scale, and Social Problem Solving Inventory are presented next.

   Aggression Questionnaire. As shown in Table 3, the results on the Aggression

Questionnaire showed a near significant result for a reduction in physical aggression (*p*=.07) for

the intervention group while no change was recorded for the control group. None of the other

subscales showed significant results or trends.

Table 3. Paired Samples Test Using Aggression Questionnaire

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1 Intervention	PhysicalAgg - PhysicalAggPost	1.93878	7.32407	1.04630	-.16494	4.04249	1.853	48	.070
Pair 1 Control	PhysicalAgg - PhysicalAggPost	.74194	8.28641	1.48828	-2.29754	3.78141	.499	30	.622

Behavior Dysregulation Scale. No significant differences were seen in the pre post and between group comparisons on the Dysregulation Scale. A weak trend was observed on the Behavioral subscale, where the intervention group showed a positive post score change while the comparison group showed a slight negative change (see Figure 2).

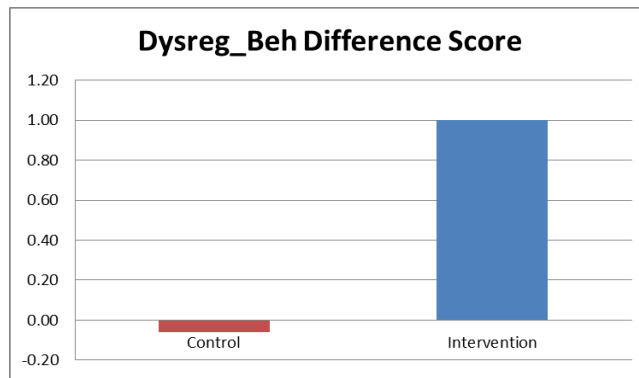**Figure 2. Behavior Dysregulation Scale Difference Score**

Figure 3 Baseline (no change) is set to 0.00

Social Problem Solving Inventory. Using the Social Problem Solving Inventory, a significant difference was found on the Cognitive subscale, for the intervention group. None of the other subscales recorded any pre-post differences (see Table 4).

Table 4. Paired Samples Test for the Social Problem Solving Inventory

		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	Df	Sig. (2-tailed)
					Lower	Upper			
Intervention	SSPI_COG - SSPI_COG_POST	.20915	.69269	.09700	.01433	.40397	2.156	50	.036

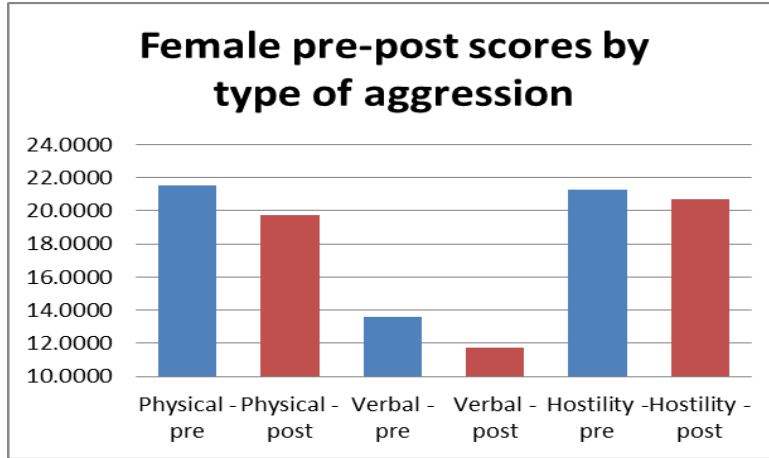**Bivariate Analyses Examining Group Differences**

Aggression Questionnaire-Gender. A breakout by gender indicated the verbal aggression reached a significant improvement for females (p-.048) and the Total score on the Aggression Questionnaire shows at trend of improving (p = .096; see Table 5).

Table 5. Paired Samples Test-Verbal Aggression-Females in Intervention &Control Groups

		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 2	VerbalAgg - VerbalAggPost	1.85714	4.75094	.89784	.01492	3.69936	2.068	27	.048

Females also demonstrated significant improvement on the Verbal Aggression scale after participating in the program, t – 2.07 (27), p < .05. Overall, as the graph indicates, there was a trend for reduced aggression for females. Males showed no change and the control group showed no change (see Figure 3).

Figure 3. Female Pre-Post Scores By Type of Aggression

Three of the four subscales showed a decrease in aggression (anger, not shown, did not).
The difference in verbal aggression was significant. The Total Aggression score also showed a trend t=1.79 (19), p - .096

Behavior Dysregulation Scale-Gender. There was a differential effect recorded for female participants on the Behavioral Dysregulation subscale. It showed a near significant improved score of females on the pre-post sample (See Table 6).

Table 6. Paired Samples Test for Females on the Behavior Dysregulation Scale

	Paired Differences Female - pre/post					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Dysreg_Beh - Dysreg_BehPost	1.32432	4.10321	.67456	-.04375	2.69240	1.963	36	.057

In summary, these exploratory analyses found partial support for the study hypotheses. Even with a small sample size, there is some indication that the cultural arts program has some positive effect on youth who participated in the program compared to you who did not, especially for females.

Conclusion

Arts programming has been touted as a way for youth to learn new skills that will increase youth resilience in stressful environments; improve social and emotional skills and abilities, as well as possibly increase cognitive functions. .While there have been a number of studies conducted to examine these relationships, most had a research design that had a number of confounding factors. This study was one of the few that used a comparison group to assess differences in the treatment group. The participants were youth that were in a diversion program for arrested youth and a prevention program for family, friends, and neighbors, of the arrested youth. Previous analyses indicated a pre post difference in mental health and social skills and an impact analysis indicated a very low recidivism rate for the participants relative to other programs.

The findings, which indicated trends but few significant results, indicated that a short term art program impact on social skills and mental health is modest at best. While prior studies support the value of art programming in general, this is, when the program itself is the independent variable, the model that suggests social skills are a mediating factor is only weakly supported. Other factors should be examined in order to develop a model of the impact of art programming on a youth's behavior in the long term.

The current findings complement several prior studies that evaluated the outcomes of the Prodigy program for participants and their parents. All studies utilized a quasi-experimental design. Even though a comparison group was not used in the prior studies significant findings between pre and post-treatment were noted across various sites, various groups of youth, and across multiple years. Perhaps the most promising prior finding was a non-recidivism rate of 90.28% (calculated by State of Florida Comprehensive Assessment Report, 2009).

The current study has methodological limitations that temper how these findings can be applied to practice and policy development. First, the small sample size may have been a factor in only achieving promising trends that did not result in statistical significance. A larger sample size is more likely to demonstrate significant results. Secondly, even though behaviorally the groups were matched, there were demographic differences in the comparison group and the intervention group that may have masked effects of the intervention.

Despite these limitations, the current study suggests areas for the future research that can be used in determining the impact of art intervention programing as well as the implementation of policy level practices. Even though the effect size was small, there were trends that suggest, with a larger sample size, the changes would be significant. When the costs of programming implementation are considered, it may be that the arts intervention program is a cost-effective strategy when serving large numbers of people. An unpublished analysis of Prodigy showed it to be one of the lowest cost interventions for the juvenile justice population. From a public health perspective, then, this may achieve significant results in a cost effective manner.

As a short term intervention, arts-based intervention is more likely to be effective with females than with males. This is also consistent with prior research on Prodigy that indicated more improvement for females. For theoretical advancement about the impact of arts programming, it will be helpful to examine other models that can explain the positive results of art programming, rather than a generalized model of resilience. Trends were observed in cognitive and behavioral constructs, and those may show a way to develop a better understanding of the impact as well as lead to improved programming design.

References

Achenbach, T. M. (1991). Integrative guide to the 1991CBCL/4-18, YSR, and TRF profiles. Burlington, VT: University of Vermont, Department of Psychology. arts.org/resources/toolkits/ctiticallinks/criticallinks.pdf

Buss, A., Warren, W, (2000). Aggression questionnaire. In *Mental Measurements Yearbook,* Buros Center for Testing, Buros Institute, 2010 accessed online Accession Number: 15122701 http://web.ebscohost.com/ehost/detail?vid=8&hid=13&sid=ec254eff-f51d-444c-ba9f-e3c1a3f2b7a7%40sessionmgr11&bdata=JnNpdGU9ZWhvc3QtbGl2ZQ%3d%3d#db=loh&AN=15122701

Butts, J., Mayer, S., & Ruth, G. (2005). Focusing Juvenile Justice on positive youth development. *Chapin Hall Center for Children: Issue Brief (105), 1-9.*

Catalano, R.F., Berglund, M.L., Ryan, J.A.M., Lonczak, H.S., & Hawkins, J.D. (2004). Positive youth development in the United States: Research findings on evaluations of positive youth development programs. *Annals of the American Academy of Political and Social Science,* 591, 98-124.Catterall, J. & Waldorf, L. (1999). Chicago Arts Partnerships in Education (CAPE) Summary of Evaluation Findings, Oak Brook, IL.

Catterall, J. (1999). Involvement in the Arts and Human Development: General Involvement and Intensive Involvement in Music and Theatre Arts. *Champions of Change*.

Catterall, J. (2002). The Arts and the transfer of learning in Deasy, R. (ed.). *Critical links:* from http://www.aep-arts.org/resources/toolkits/ctiticallinks/criticallinks.pdf

Choi, A., Lee, M., & Lim, H. (2008). Effects of group music intervention on depression, anxiety, and relationships in psychiatric patients: A pilot study. *The Journal of Alternative and Complementary Medicine, 14* 5, 567-570.

Clawson, H. J., & Coolbaugh, K. (2001). *The YouthARTS development project: Juvenile justice bulletin* (Publication No. NCJ 186668). Retrieved November 2004 from http://www.ncjrs.org/html/ojjdp/2001_5_2/contents.Html

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences* (2nd ed.). New Jersey: Lawrence Erlbaum.

Cohen, J. (1992). Statistical power analysis. *Current Directions In Psychological Science (Wiley-Blackwell)*, *1*(3), 98-101. doi:10.1111/1467-8721.ep10768783

Florida Department of Juvenile Justice. (2010 est). *2007-2008 Comprehensive Accountibility Report. Learning in the arts and student academic and social development*. Tampa, FL: Author.

Frauenknecht, M., & Black, D. R. *Social problem-solving inventory for adolescents (the)* SPSI-A, LLC, P.O. Box 147, Oshtemo, MI 49077-0147.

Gresham, F. M., Elliott, S. N., Vance, M. J., & Cook, C. R. (2011). Comparability of the social skills rating system to the social skills improvement system: Content and psychometric comparisons across elementary and secondary age levels. *School Psychology Quarterly, 26*(1), 27-44. doi:10.1037/a0022662

Harlow, K. (2005). An Assessment of the Emotional Assets of Students in the Bernard's Township School District. Last accessed 8/14/08: http://www.bernardsalliance.org/solution/Learn_more_files/2005-stressors-and-assets.pdf

Heath, S. and Roach, A. (1999). Imaginative Actuality: Learning in the Arts during the Non-school Hours, in Edward Fiske (ed.), *Champions of Change: The Impact of the Arts on Learning*.   Arts Education Partnership and the President's Committee on the Arts and the Humanities.

Hodges, D. & O'Connell, D. (2005). The impact of music education on academic achievement. *The Sounds of learning: The impact of music education*. Retrieved from http://www.uncg.edu/mus/soundsoflearning.html.

Hoenig, J., & Heisey, D. (2001). The abuse of power: The pervasive fallacy of power calculations for data analysis. *The American Statistician, 55*, 19-24.

Jeong, Y., Hong, S., Lee, M., Park, M. (2005). Dance movement therapy improves emotional responses and modulates neurohormones in adolescents with mild Depression. *International Journal of Neuroscience, 115*, 1711-1720.

Kisiel, C., Blaustein, M., Spinazzola, J., Schmidt, C., Zucker, M., & van der Kolk, B. (2006). Evaluation of a theater-based youth violence prevention program for elementary school children. *Journal of School Violence, 5,* 2, 19-36.

Lenth, R. V. (2001). Some practical guidelines for effective sample size determination. *The American Statistician, 55*, 187-193.

Lindsay, J., Wrights, R., Rowe, W., & Duku, E. (2009). Effects of an after-school arts program on youths in low-income communities: A comparative study of Canadian and American Youths. *Best Practices in Mental Health, An International Journal*, *5*, 1, 74 -88. Lenth, R. V. (2001). Some practical guidelines for effective sample size determination. *The American Statistician, 55*, 187-193.

Mezzich A., Tarter R., Giancola P., Kirisci, L. (2001). The dysregulation inventory: A new scale to assess the risk for substance use disorder. *Journal of Child & Adolescent Substance Abuse. 10*(4):35–43. doi: 10.1300/J029v10n04_04

Miller, J. & Rowe, W. (2009). Cracking the black box: What makes and Arts intervention program work? *Best Practices in Mental Health, An International Journal*, *5*, 1, 52-64.

Office of Juvenile Justice and Deliquency Prevention (OJJDP) (No date), Model Program Guide. Nominate a program. Retrieved 11/6/2011 Website http://www.ojjdp.gov/mpg/mpg_nomination.aspx

Rapp-Pagglicci, L. & Savon, A. (2009). How can treatment motivation enhance youth prevention programs? *Best Practices in Mental Health, An International Journal*, 5 (1), 44.

Rapp-Paglicci, L., Stewart, C., & Rowe, W. (2011): Can self-regulation skills and cultural arts program promote positive outcomes in mental health symptoms and academic achievement for at-risk youth? *Journal of Social Service Research*, 37:3, 309-319.

Rapp-Paglicci, L., Stewart, C., & Rowe, W. (2009). Evaluating the effects of the Prodigy
    Cultural Arts Program on symptoms of mental health disorders in at-risk and adjudicated
    youths. *Best Practices in Mental Health, An International Journal*, 5 (1), 65-73.

Rapp-Paglicci, Stewart, Rowe, & Miller (2011). Addressing the Hispanic delinquency and
    mental health relationship through cultural arts programming: A research note from the
    Prodigy evaluation. *Journal of Contemporary Criminal Justice*, Vol. 27 No. 1, 110-121.

Roth, J. (2004). Youth development programs. *The Prevention Researcher, 11, 2, 3-7.*

Social Problem-Solving Inventory for Adolescents (SPSI-A): Development and preliminary
    psychometric evaluation. *Journal of Personality Assessment* PD- Jun95, p52.

    status. *Child Development, 66,* 1360-1384.

Stone, A., Bikson, T., Moini, J., & McArthur, D. (1998). The arts and prosocial impact study:
    Program characteristics and pro-social effects (RAND DRU-1887-LADCA). Santa
    Monica, CA: Rand Institute on Education and Training.

Stone, A., McArthur, D., Law, S.A., Moini, J. (1997). *The arts and pro-social impact study: An
    examination of best practices.* (RAND DRU-1686-LADCA). Santa Monica, CA: RAND
    Institute on Education and Training.

Winner, E. & Hetland, L. (2000) "The Arts in Education: Evaluating the Evidence for a Causal
    Link," *Journal of Aesthetic Education*, Vol. 34, Nos. 3-4, Fall/Winter, 1-9.

Wright, R., Lindsay, J., Allaggia, R., and Sheel, J. (2006). Community-based arts program for
    youth in low-income communities: A multi-method evaluation. *Child and Adolescent
    Social Work Journal, 23*, 635-652.

Wright, R., Lindsay, J., Ellenbogen, S., Offord, D., Duki, E., & Rowe, W. (2005). Effect of a
    structured arts program on the psychosocial functioning of youth from low-income
    communities: Findings from a Canadian longitudinal study. *Journal of Early
    Adolescence, 26,* 186–205.

Wright, R., Lindsay, J., Offord, D., Duku, E. Rowe, W., & Ellenbogen, S. (2006).Effect of a structured arts program on the psychosocial functioning of youth from low-income communities: Findings from a Canadian longitudinal study. *Journal of Early Adolescence,* 26 (2) 1-20.Zimmerman, B. & Martinez-Pons, M. (1990). Student Differences in Self-Regulated Learning: Relating Grade, Sex, and Giftedness to Self-Efficacy and Strategy Use. *Journal of Educational Psychology, 82,* I, 51-59.

APPENDIX

<h1 style="text-align:center">Methodology Technical Note</h1>

Research Questions and Hypotheses

Hypothesis One: One of the primary research questions addressed in this report, identified as Hypothesis 1, concerns the effectiveness of art programming at the programmatic level.

The first research question addressed the question of art programming, generally, when data are collapsed across teachers and settings. This is a question that has seen limited research. If positive, it makes the utilization of art programming as a means of impacting youth development more viable and thus more acceptable to government agencies and funders.

Hypotheses Two and Three: In order to more fully understand who may benefit most from art programming, additional analyses were conducted to examine the differences in outcomes based on the individual characteristics of the participants. The research questions investigated through these analyses ask whether individual characteristics are related to any improvement in mental health symptoms and social skills. These characteristics include ddemographic variables such as age, gender, and race/ethnicity.

These specific research questions asked were:

1. Do demographic characteristics influence the outcomes produced in the Prodigy/PASS art programming?

2. What mental health variables and social skills are more likely to be positively influenced by the art programming and which ones are less likely?

Hypotheses Two and Three: Based on these research questions, we hypothesized that there would be significant differences based on demographic characteristics (e.g., race, gender and age) on the outcomes produced in the Prodigy/Pass arts Programming. We also hypothesized that mental health variables and social skills would be differentially influenced by the Prodigy/PASS arts programming.

<h2 style="text-align:center">Data Analysis</h2>

This study consisted of two groups, one from each of two programs, Prodigy and PASS. Participants in the Prodigy program were given the "arts prevention treatment," and wait list participants in the PASS program served as our control group. The social skills and mental health assessments were measured before and after prevention treatment for participants in the Prodigy program. The assessments before prevention treatment are considered our pre-test and after

prevention, our post-test. Similarly, these pre/post assessments of social skills and mental health were also given to participants in the control group.

The outcome measure is the social skills (e.g., SSIS) and mental health score (e.g., YSR-internalizing and externalizing behavior subscales). The primary hypothesis is that the change in the social skills and mental health score will be more positive for Prodigy participants compared to PASS participants. The second hypothesis is that the change in scores may be influenced by demographic characteristics. The social skills and mental health scores are analyzed based on different functions which are frequently referred to as domain scores. The third hypothesis is that changes in different domain scores may be influenced differently by demographic characteristics.

Data Analysis Strategy Used in the Current Study

All analyses were conducted using the statistical software is SPSS 20.0. Pre-post analyses compared various measures of mental health and social skills to evaluate if participation in the arts programming resulted in positive outcomes (i.e., decreased internalizing or externalizing behavior or increased social skills). For this level of analyses, a larger data set will be utilized. A within-group analysis will be conducted, which is relatively resilient to any individual differences effects – a common confounding issue facing between-groups analysis. As this second analyses is exploratory in nature, it will serve as the foundation for future model building involving more sophisticated multivariate analyses (i.e., structural equation modeling). As the variables had been selected for the pre-post assessments based on prior research, any that are found in this analyses to produce a positive change in outcomes will be considered for inclusion in the model.

Descriptive statistics reported include the mean, standard deviation, median, min and max for continuous variables; number and percentage for categorical variables. The demographic characteristics and social skills and mental health scores are presented for each program. The two-sample t-test or Chi-Square test was used to compare demographic characteristics variables between the two programs. The social skills and mental health scores are analyzed as continuous variables. The two-sample t-test is used to compare the pre-test scores between the two programs.

To test the study hypotheses, the analysis plan entailed the use of a Repeated Measures MANOVA (RM MANOVA), where time (pre/post) and condition (experimental/control) are compared for differences in the dependent measures (i.e., social skills and mental health). This

approach produces a general main effect for time (pre versus post scores) independent of experimental condition. The experimental condition effect is similar to an interaction effect in the univariate ANOVA model where we can evaluate if differences between times were influenced by membership in either condition (experimental or control).

RM MANOVA, as opposed to a series of RM ANOVAs, was used to avoid having to implement the Bonferroni adjustment, which would require the alpha (p<.05) to be divided by the number of analyses. In this case, .05 / 5 different measures = alpha level of .01. Multivariate analyses are used to reduce our risk of committing a Type II error. When sample size permitted, groups were matched on the dependent measures and any other key demographic variables, including, gender, race, and age, to be certain the two groups start as equivalent as possible. Matching reduces the internal threat of regression towards the mean as well reduce the risk of a selection bias. That is, the experimental and the comparison groups are more likely to be equivalent. For all results, a p-value less than 0.05 is considered as statistically significant.

Hypothesis One

Hypothesis one was tested that posited that youth who participated in the Prodigy/PASS program would report statistically significant higher levels social skills and mental health improvement compared to youth who did not participate in the Prodigy/Pass Program. To test hypothesis 1, a repeated measures ANOVA with condition (control or experimental) as a between-factors covariate was conducted on a series of psychosocial measures (see Table 2). All analyses demonstrated no significant differences between pre and post-tests (regardless of condition) and no significant interaction between time and condition. Considering the low sample sizes and the reported low post-hoc power (all observed post-hoc power less than .10) and effect sizes (all η^2 less than 5%), any differences found would have needed to have been substantial in order to achieve statistical significance at p<.05.

Mauchly's Test of Sphericity was violated for each of these analyses (p<.05), indicating that there are significant differences between the variances of the differences. However, Mauchly's is typically only conducted with three of more repeated measures (we only used two). However, Mauchly's test is also likely skewed by the remarkably small sample sizes of the two conditions. Consequently, the analyses are still subject to the same scrutiny regarding sample size, assumptions of normalcy, and power regardless of Mauchly's results. Findings should

underscore the need for future research – with adequate power – to address the exploratory findings uncovered in this study.

Hypotheses Two and Three

Hypotheses 2 and 3 were not testable for advance statistical modeling due to issues of sample size coupled with the myriad variables intended for the analyses. The following brief section will review the basic reasons as to why any inferential statistics with these sample sizes would be unacceptable. For a more thorough review, see Cohen (1988, 1992), Lenth (2001), or Hoenig and Heisey (2001).

Basically, large samples give more reliable results whereas small samples often leave the null hypothesis unchallenged (due to large samples better replicating the population). Statistical power is defined as the probability of rejecting the null hypothesis while the alternative hypothesis is true. Consequently, any preliminary inferential statistics were deemed inappropriate for hypotheses 2 and 3 for the following simple reasons:

1) The small overall sample size problem would be exacerbated by splitting the sample into smaller sub-samples based on the proposed demographic variables (such as gender or ethnicity).

2) By exacerbating the issue, the ability to infer findings to the population is even further diminished as error would produce 95% confidence interval bands (e.g., obtained via bootstrapping) too wide to merit any consideration

3) The likelihood of a Type II error (supporting null when it should be rejected) is magnified because with such small cell sizes (some in the teens) any significant effect would need to be very large in order to be found statistically significant.

4) Even if said effect occurred, the small sample size and limited sampling pool from where participants were obtained would make any inferences to the overall population in question limited to non-existent.

Consequently, we felt it is best to not conduct advanced statistical analyses for hypotheses 2 and Considering the unique and exploratory nature of the scope of our study, the general findings (from hypothesis 1) coupled with any descriptives of variables from hypotheses 2 and 3 and additional bivariate analyses that we present next provide a solid empirical foundation to build subsequent studies (with adequate power/sample size) to address the critical questions raised by our initial inquiry.

A Second Possible Data Analysis Strategy used to Test the Study Hypotheses with Large Enough Sample Size

This study consisted of two groups, one from each of two programs, Prodigy and PASS. Participants in the Prodigy program were given the "prevention treatment," and participants in the PASS program served as our control group. The social skills and mental health assessments were measured before and after prevention treatment for participants in the Prodigy program. The assessments before prevention treatment are considered our pre-test and after prevention, our post-test. Similarly, these pre/post assessments of social skills and mental health were also given to participants in the control group.

The outcome measure is the social skills and mental health score. The primary hypothesis is that the change in the social skills and mental health score will be more positive for Prodigy participants compared to PASS participants. The second hypothesis is that the change in scores may be influenced by demographic characteristics. The social skills and mental health scores are analyzed based on different functions which are frequently referred to as domain scores. The third hypothesis is that changes in different domain scores may be influenced differently by demographic characteristics.

Descriptive statistics reported include mean, standard deviation, median, min and max for continuous variables; number and percentage for categorical variables. The demographic characteristics and social skills and mental health scores are presented for each program. The two-sample t-test or Chi-Square test was used to compare demographic characteristics variables between the two programs. The social skills and mental health scores are analyzed as continuous variables. The two-sample t-test is used to compare the pre-test scores between the two programs.

To test the primary hypothesis, the analysis of covariance (ANCOVA) model is used to compare the change of social skills and mental health scores between two programs. The pre-test score is a covariate in ANCOVA model. Demographic variables with statistically significant differences between the programs are included in the final ANCOVA model.

To test the second and third hypotheses, the ANCOVA model includes the interaction term between the program variable and demographic variable. The interaction terms are used to examine the change of social skills and mental health scores influenced by demographic characteristics.

For all results, a p-value less than 0.05 is considered as statistically significant.

Additional notes for SAS Users:

Model with interaction terms used:

Change = prevention + pretest_value + race + prevention * race

SAS code:

proc glm data=dset ;

model change = prevention pretest_value race prevention*race/solution;

run;

Interpretation:

1. The prevention term is to examine whether the change score is difference between prevention given a race.
2. The pretest_value term is a covariate including in the model for adjustment.
3. The race term is to see whether the change score is difference between race.
4. The interaction term (prevention*race) is to examine whether the prevention effect works differently between race.

Note: The interaction term is most interesting term to be tested.

Model without interaction terms used

Change = prevention + pretest_value + race

SAS code:

proc glm;

model change = prevention pretest_value race /solution;

run;

Interpretation:

1. The prevention term is to examine whether the change score is difference between prevention without condition on race.
2. The pretest_value term is a covariate including in the model for adjustment.
3. The race term is to see whether the change score is difference between race.

Note: The prevention term in this model is most interesting term to be tested.

Notation

Change = posttest_value – pretest_value

References

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences* (2nd ed.). New Jersey: Lawrence Erlbaum.

Cohen, J. (1992). Statistical power analysis. *Current Directions In Psychological Science (Wiley-Blackwell)*, *1*(3), 98-101. doi:10.1111/1467-8721.ep10768783

Hoenig, J., & Heisey, D. (2001). The abuse of power: The pervasive fallacy of power calculations for data analysis. *The American Statistician, 55*, 19-24.

Lenth, R. V. (2001). Some practical guidelines for effective sample size determination. *The American Statistician, 55*, 187-193.

STUDY INSTRUMENTS WITH WEBLINKS

Child Behavior Checklist (CBCL) and Youth Self-Report (YSR): The CBCL/6-18 has 118 items that describe specific behavioral and emotional problems in youth, plus two open-ended items for reporting additional problems. For quality control, parents rate children's responses on the accuracy of multiple items regarding current and recent behaviors and activities. The YSR is completed by youth (i.e., self-report) and the CBCL, known for strong reliability and validity, is used to detect and assess mental health difficulties (Achenbach, 1991).
http://www.cebc4cw.org/assessment-tool/child-behavior-checklist-for-ages-6-18/

Academic Performance: Prodigy participant specific data, cleansed of identifiers, were obtained from relevant school districts and included: grade level, number of days of in-school suspension, number of days in out-of-school suspension, reduced lunch participation, yearly grade point average (GPA), grades in math, science and reading courses by quarter, number of reported incidents (drugs/alcohol, disruptive behavior, crimes), total number of days enrolled by quarter, excused absences by quarter, and unexcused absences by quarter.

Family Functioning: The Family Assessment Device (FAD), based on the McMaster Model of family functioning, assesses familial structural, organizational properties, and the patterns of transactions among family members (Epstein, Baldwin, & Bishop, 1983). The scale measures six dimensions of family functioning: Problem Solving (PS), Communication (C), Roles (R), Affective Responsiveness (AR), Affective Involvement (AI), Behavior Control (BC).
http://parentcity.org/wp-content/uploads/2013/03/the-mcMaster-FAD-description-paper.pdf

Behavior Dysregulation Scale (BDS): The BDS is a 92-item measure that measures Dysregulation on three dimensions: Affective Dysregulation (28 items), Behavior Dysregulation (36 items), and Cognitive Dysregulation (28 items). Psychometric analyses, including Confirmatory Factor Analysis and Item Response Theory were conducted to demonstrate both reliability and validity of the measure. Results indicate psychometric soundness through examination of four samples (Mezzich, Tarter, Giancola, & Kirisci, 2001).
http://eric.ed.gov/?id=EJ674239

The Social Skills Improvement System (SSIS) (Gresham & Elliott, 2008) is a revision of the widely used Social Skills Rating System. This assessment was used to measure the pre-intervention – post-intervention changes in social skills. Subscales include communication, cooperation, assertion, responsibility, empathy, engagement, and self-control.   Internal reliability ranges for .72 for the Assertion subscale to .94 for the Communication subscale. Validity has been demonstrated in normal and special needs population.
http://www.pearsonassessments.com/pai/ca/RelatedInfo/SSISOverview.htm

Aggression Questionnaire is a revised version of the Buss-Durkee Hostility Inventory (Buss & Warren 2000) and measures aggression and anger. It has an overall score and five scales: physical aggression, verbal aggression, anger, hostility, and indirect aggression. The scales have an alpha of .70 or higher and the overall scale has an alpha of .90. It has been in wide use as a measure for youth.

http://portal.wpspublish.com/portal/page?_pageid=53,70400&_dad=portal&_schema=PORTAL

Social Problem Solving Inventory (Frauenknecht, M & Black, D., 2005) is a widely used scale measure that assesses automatic process, problem orientation and problem-solving skills. Orientation has three subscales: cognitive, emotional, and behavioral. Problem-solving skills have subscales for   Problem Identification, Alternative Generation, Consequence Prediction, and Implementation/Evaluation/Reorganization. The reliability is over .93 for the entire scale.

The independent variable was an arts program that utilized instruction in either the performing or visual arts. This former included dance, music, Capoeira, or theater. The latter included painting, drawing, collaging, or clay modeling.

The program was an eight week program conducted after school either at a community agency. The youth who participated had received two or more suspensions within the prior and/or current school year; and/or had been arrested; and/or lived in a neighborhood with high incidence of arrests and crime. http://homepages.wmich.edu/~frauenkn/WebProRecognition

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The Use of the Arts with Juvenile with Mental Health Problems and Their Families: A Content Analysis of the Literature

Tina Maschi, PhD, LCSW, ACSW and Alyson Weaver, BA, Fordham University Graduate School of Social Service

The Promise of the Arts to Make a Difference in the Lives of Youth and Their Families and Communities

BACKGROUND

- In the United States, as of 2011 there were 25,108,369 youth in the Juvenile Justice (JJ) System (Puzzanchera, Sladky, & Kang, 2012).

- Within that population, research estimates between 65%–70% youth in the JJ System present with at least one mental health disorder, while more than 60% have multiple diagnoses (Shufelt & Cocozza, 2006).

- There's been an increasing interest in the use of arts for rehabilitation for mental health among youth in the JJ System (Miller & Rowe, W. S.).

- However, to date there has been no systematic review of the major findings of art based interventions with this population.

- To fill this gap, a content analysis was conducted to state of the empirical literature on the methods and major findings that examine youth with mental health problems in the JJ System.

Youth: Mental Health, Juvenile Justice, Well-Being → **Intervention**: Cultural Arts → **Well-Being**: Psychological, Emotional, Social, Behavioral

METHODS

FUNDER: National Endowment of the Arts

PRINCIPAL INVESTIGATOR: Tina Maschi, PhD, LCSW, ACSW

DESIGN: Content Analysis of the Empirical Literature on Mental Health, Juvenile Justice, and the Arts

DATA SOURCE: EBSCO HOST, Academic Search Premier using Keyword Search Terms: Mental Health, Juvenile Justice, and the Arts

DATA ANALYSIS: Inductive and Deductive Content Analysis Methods (Maschi et al. 2012)

MAJOR FINDINGS

SAMPLE SIZE: 13 peer-reviewed empirical studies were included in the review

RESEARCH DESIGN:
- 1 group design (n = 8), 2 or more group designs (n = 4)
- Prison (n = 6), Juvenile Detention Center (n = 3)
- Non-probability sample (n = 12)

DATA COLLECTION: The majority of the data was collected with the use of interviews (n = 4) and semi-structured interviews (n = 3), followed by the use of questionnaires (n = 2) and case-record/reviews (n = 2).
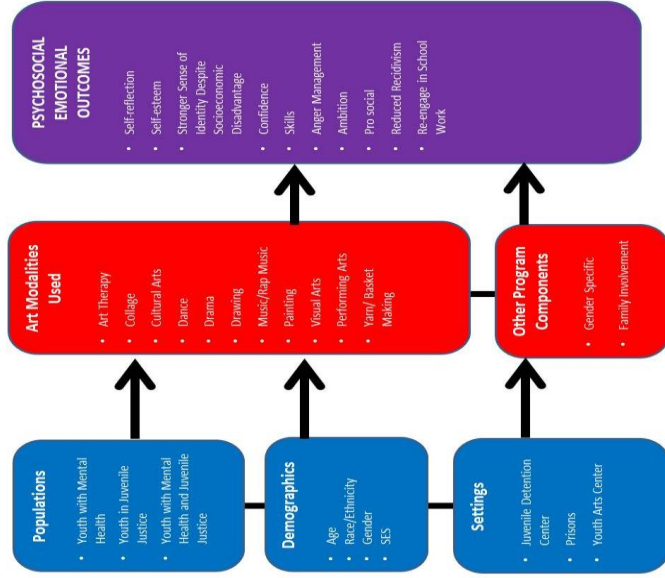
SAMPLE DESCRIPTION: Sample size range (n = 3661) included majority whites youth (n = 1321) and mostly males (n = 2463). The age range of the sample was 10–21 years old. Most of the studies were conducted in the U.S. (n = 11).

VARIABLES AND MEASURES: None of the studies specifically measured family functioning, however five studies mentioned family and/or parental relationship. Most looked at internal resources, such as self-esteem compared to external resources, such as social support (n = 10). Three studies implemented standardized measures which included the Emotion Scale, Rosenberg Self-esteem Scale, Locus of Control of Behaviour Scale, RAP Therapy Assessment Scale, Hartz Art Therapy Self-Esteem Questionnaire-Hartz AT-SEQ) and the Self-Perception Profile for Adolescents (SPPA).

DATA COLLECTION PROCEDURES: Most studies used in person interviews followed by self-administered surveys (n = 9).

MAJOR FINDINGS: The majority of the studies found that art based intervention programs were effective in improving psychosocial emotional outcomes, such as self-esteem, prosocial skills and self-expression. Other identified benefits included improvement in connection to community and social support.

FINDINGS & IMPLICATIONS

Populations
- Youth with Mental Health
- Youth in Juvenile Justice
- Youth with Mental Health and Juvenile Justice

Demographics
- Age
- Race/Ethnicity
- Gender
- SES

Settings
- Juvenile Detention Center
- Prisons
- Youth Arts Center

Art Modalities Used
- Art Therapy
- Collage
- Cultural Arts
- Dance
- Drama
- Drawing
- Music/Rap Music
- Painting
- Visual Arts
- Performing Arts
- Yarn/ Basket Making

Other Program Components
- Gender Specific
- Family Involvement

PSYCHOSOCIAL EMOTIONAL OUTCOMES
- Self-reflection
- Self-esteem
- Stronger Sense of Identity Despite Socioeconomic Disadvantage
- Confidence
- Skills
- Anger Management
- Ambition
- Pro social
- Reduced Recidivism
- Re-engage in School Work

IMPLICATIONS
- These findings suggest that the use of the arts with youth with mental health and juvenile justice concerns are a promising practice to address psychosocial behavioral issues, including prosocial behavior.
- Future research also should incorporate the influence of cultural arts on improving youth's well-being, family functioning, and community involvement as well as more rigorous research designs that included longitudinal mixed methods designs. And action research.

FOR MORE INFO ABOUT THE PROJECT CONTACT PI-TINA MASCHI at tmaschi@fordham.edu

Research Team Biographies and Partner Descriptions

PI, Dr. Tina Maschi, is a social work researcher, practitioner, and professional musician. She is an Assistant Professor at the Fordham University Graduate School of Social Service. Her extensive research and publication record includes the use of creative arts intervention for mental and social well-being. Dr. Maschi has coordinated intramural and extramural grant-funded research projects and fellowships from government and private foundation sources. She is the 2010 recipient of the competitive Hartford Geriatric Social Work Faculty Scholars Program Award, which is funded by the Hartford Foundation and the Gerontological Society of America (GSA). This research project examined the role of coping resources (e.g., such as the use of the arts activities and social coping) among state prisoners. She is well published, including in the use of arts as an intervention strategy for mental and social well-being. For the NEA project, Dr. Maschi provided for project management, oversaw contract compliance, and contributed to and coordinated the team effort for data analysis, report writing, and dissemination of the project findings.

Co-PI, Dr. Jerry Miller, is an Industrial-Organizational Psychologist, based at the Community Research Center, Inc., with extensive expertise in managing grant projects from government and private foundations. He has managed large complex multi-year projects including field-based research projects. He has a strong background in working with school systems and in youth programming. He directed the Prodigy program for the University of South Florida, on which the PASS program was based. He has also conducted several analyses on the program. Dr. Miller has published in both professional and peer review journals and has been invited to present his work internationally. He oversaw the work plan and assisted the PI with project management and, due to his experience with arts based programming, he will have responsibility for the management of the datasets, data analyses, and writing of reports and publications as needed.

Co-PI, Dr. William Rowe, is a Professor in the School of Social Work at the University of South Florida. He holds appointments in the College of Public Health, the Aids Education and Training Center, and the Moffitt Cancer Center. He is formerly Director and Professor of the Schools of Social Work at the University of South Florida, McGill University and Memorial University and was originally tenured at the University of Western Ontario. Dr. Rowe has served on numerous national and international boards and committees in both the academic and practice arenas. Dr. Rowe has been instrumental in the development of social work education programs in Mexico, the Middle East, the Persian Gulf, and Indonesia. He remains an active researcher.

Dr. Rowe was Principal Investigator on two large scale arts intervention programs. During his 30 years as a social work educator Dr. Rowe has edited and authored more than 150 scholarly and

professional books, articles, monographs, and research papers on a variety of topics. He serves on the editorial board of a number of academic and professional journals, including the Journal of Evidence-Based Social Work, and is co-editor of Best Practices in Mental Health: an International Journal. Dr. Rowe provided the datasets to be analyzed and be available, as needed, for consultation throughout the project period.

Keith Morgen, Ph.D., LPC, NCC, is an Assistant Professor of Psychology at Centenary College and teaches in the undergraduate Psychology and graduate Counseling Psychology programs. Dr. Morgen is a Licensed Professional Counselor (LPC) in New Jersey and a National Certified Counselor (NCC). He received his Ph.D. in Counseling Psychology from Lehigh University. He was a Pre-doctoral and Post-doctoral Fellow in the Behavioral Sciences Training in Drug Abuse Research Program, which was funded by the National Institute on Drug Abuse (NIDA) and jointly sponsored by the Medical and Health Research Association of New York City, Inc. (MHRA), and the National Development and Research Institutes, Inc. (NDRI). Dr. Morgen has served as a research methodologist and statistician on two NIDA grants and has offered consultative research services to numerous other social science projects. Dr. Morgen has over 25 publications on addiction and trauma issues. In addition, Dr. Morgen has presented at numerous major conferences, such as the American Counseling Association, American Public Health Association, Eastern Psychological Association, and the College on Problems of Drug Dependence. Dr. Morgen has been awarded a Psi Chi Faculty Advisor Research Grant for his work on addiction and trauma within New Jersey parolees. Dr. Morgen contributed to the data analysis part of the project.

Deborah Viola, PhD, is associate professor and Director, Doctoral Program, in the Department of Health Policy & Management at the School of Health Sciences and Practice at New York Medical College, where she also serves as a research scholar at the Center for Long Term Care Research & Policy. Dr. Viola is an economist whose current research includes the effects of home-delivered meals programs among frail, isolated NYC residents; a study of the relationship between income support programs and health among children and communities; prisoner health and social justice; and the long term care needs of children with intellectual and developmental disabilities. Dr. Viola's current funding includes a HRSA grant for the development of medical residency training that emphasizes the non-medical determinants of health care. Dr. Viola sits on several community boards, including the Bergen County Board of Social Services, where she is the Secretary and Treasurer. She earned a Ph.D. in economics from the Graduate School at the City University of New York as a Robert E. Gilleece fellow.

Qiuhu Shi, PhD, is professor and Director of Biostatistics in the Department of Epidemiology and Community Health at NYMC's School of Health Sciences and Practice, where he also serves as a research scholar at the Center for Long Term Care Research & Policy. Dr. Shi's primary research interests

include clinical trial design, planning and analysis, as well as statistical methodological research in building and testing prediction models in public health. He has co-authored over 70 articles in public health or clinical trial studies, been a statistician or co-investigator in many NIH grants, reviewed clinical papers for numerous journals, and taught graduate level biostatistics courses for more than 15 years. He received his graduate degree from the Mailman School of Public Health, Columbia University.

Organizational Partners

Founded in 1841, **Fordham is the Jesuit University of New York**, offering exceptional education distinguished by the Jesuit tradition to more than 15,100 students in its four undergraduate colleges and its six graduate and professional schools. It has residential campuses in the Bronx and Manhattan, a campus in West Harrison, N.Y., the Louis Calder Center Biological Field Station in Armonk, N.Y., and the London Centre at Heythrop College in the United Kingdom.

A research university, Fordham received $43 million of multi-year external funding (both new and continuing awards) in fiscal year 2011; this is an 8.5% increase from the previous fiscal year. The University's Office of Sponsored Programs and the Controller's Office oversee the contractual and financial aspects of all grants and contracts throughout the University. Fordham University will oversee all fiscal matters and general grantor conditions related to this project. The financial analyst will monitor grant expenditures and prepare financial reports and budget modifications.

The Fordham University **Graduate School of Social Service (GSSS)** is one of the nation's oldest schools of social work and has been a fully accredited professional school since 1929. GSSS is ranked among the top twenty graduate schools of social work in the nation and it currently is the nation's largest. All faculty and staff at GSSS have offices equipped with up-to-date computers, printers and furniture, and all necessary supplies and software and computer support for conducting research. Support staff is available, including a dedicated Grants Officer who will assist in the management of this grant.

Fordham University's division of Information Technology (IT) is committed to creating an environment with easy access to the information technology resources and information needed, and to provide an information technology infrastructure that supports Fordham's institutional goals. Wireless technology, a state-of-the-art Electronic Information Center, quality and integrity of information security, Faculty Resource Centers, Smart Classrooms, video conferencing throughout the university and technological expertise are all hallmarks of Fordham University's Information Technology division.

Fordham's virtual network, available 24 hours a day via the Internet, provides multiple redundant access paths to the Internet and a host of other electronic resources. In addition, Enterprise Technology Services (ETS) within IT is committed to the application of "best practices" in the establishment of highly

responsive and available computing platforms as well as a stable and reliable network infrastructure for Fordham University.

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The University of South Florida provided access to the data sets collected during the Prodigy/PASS program. They also provided research guidance through the Co-PI, Dr. William Rowe.

The Community Research Center Inc. (CRCI) is an independent organization that was responsible for managing the datasets, conducting some of the data analyses, jointly overseeing the project with Fordham University, and participating in the analysis and write up of reports and potential peer-reviewed articles. CRCI provided space, a computer and software for writing, website support for communicating any findings, and SPSS for analysis.

HELPFUL WEB LINKS

Web Resource Develop for this NEA Grant: http://www.communityresearchcenter.com/thearts

Community Research Center: www.communityresearchcenter.com

Be the Evidence Project: http://www.fordham.edu/btep

Prodigy Program: http://www.transformingyounglives.org/

Office of Juvenile Justice and Delinquency Prevention: http://www.ojjdp.gov/

National Organization for Forensic Social work: http://nofsw.org/

International Expressive Arts Therapy Association: www.ieata.org

Social Problem-Solving Inventory for Adolescents:

http://homepages.wmich.edu/~frauenkn/WebProRecognition