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Examining the Role of Mentorship on Urban Youth: The Effect of Locus of Control on Academic Achievement

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Examining the Role of Mentorship on Urban Youth:

The Effect of Locus of Control on Academic Achievement

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Biography

The author was born in Evanston, Illinois November 3rd, 1992. She graduated from Kenwood Academy High School and received her Bachelor of Arts degree in Psychology and Sociology from the University of Missouri-Columbia in 2013. She is currently pursuing a PhD in Clinical-Child Psychology at DePaul University in Chicago, Illinois.

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Abstract

Positive academic effects of mentoring interventions have bee established, but little is known about how and why mentoring interventions are effective. Understanding the mechanisms or constructs that enable mentoring effects would allow researchers to better generalize these types of interventions across populations. This present study explored the construct, locus of control, and examined its effects on academic achievement in the context of mentorship. In the present study, 87 urban, low-income middle school youth participated in a randomized controlled trial intervention, entitled The Cities Mentor Project. Cities Mentor Project provides coping trainings, and access to mentors and community organizations, to further develop skills essential for positive youth development. Youth completed a battery of questionnaires that included a subscale measure on locus of control, Academic grades were also collected. This study was conducted to better understand if locus of control is a mechanism that helps explain how and why mentoring "works."

Introduction

There are substantial disparities in academic engagement, achievement, and school completion between youth residing in low-income urban communities and those residing elsewhere in our nation (Ceballo, McLoyd, & Toyokawa, 2004; Crowder & South, 2003; Gonzales, Cauce, Friedman, & Mason, 1996). In Chicago, the odds are grim for these low-income youth. Fewer than half of Chicago Public School students (47%) *meet* and less than a quarter (19%) *exceed* academic requirements for their grade level on the Illinois Standards Achievement Test (Chicago Public Schools, 2013), and only 14% graduate from a four-year college (Postsecondary Project, 2006). Low-income urban youth also often have poor attitudes towards school. They can be critical of their schools and express dissatisfaction with school conditions, teacher quality, disciplinary policies, and curricular content (Dutro, 2009). Many students who drop out cite boredom with school as their main reason (Fallis & Opotow, 2003; Willms, 2003). Low-income urban youth also report less academic adequacy, which has been linked to poorer long-term outcomes (McLoyd & Wilson, 1992; Millstein, Nightingale, & Peterson, 1993). A person's education is closely linked to the individual's life chances, income, and well-being (Battle & Lewis, 2002). Therefore, it is important to have a clear understanding of what enhances educational attainment in order to design effective interventions for low-income urban youth.

Mentoring

There is a need for effective interventions that reduce poverty's negative effects for youth during early adolescence. Academic disengagement, failure, and drop-out in low-income urban communities increase sharply with the transition to high school (Arnett, 1999; Cauce, Stewart, Rodriguez, Cochran, & Ginzler, 2003; Compas, Hinden, &

Gerhardt, 1995). Whether this reflects the culmination of earlier influences, emerging power stressors, or decreasing support from adults, the early adolescent period is critical for preventing the social and behavioral problems that predict academic disengagement and failure during this risky transition (Scaramella, Conger, & Simons, 1999; Gould, Greenberg, Velting, Shaffer, 2003; Seidman, Lambert, Allen, & Aber, 2003). Prior research indicates that particular types of social, behavioral, and academic interventions implemented with low-income urban adolescents can be effective (Farahmand, Duffy, Tailor, DuBois, Lyon, Grant, Czarlinski, Masini, Zander, & Nathanson, 2012). One intervention that has shown a fair amount of promise is youth mentoring. Youth mentoring is a "relationship between an older, more experienced adult and an unrelated, younger protégé –this is a relationship in which the adult provides ongoing guidance, instruction, and encouragement aimed at developing the competence and character of the protégé" (Rhodes, 2002). Mentoring interventions have been found to be moderately effective in the lives of low-income youth. Mentoring has been shown to decrease problem behavior, discourage skipping school and classes, and improve school grades, engagement, value and attitudes (Keating, et.al. 2002; Tierney & Grossman, 1995; Frecknall & Luks, 1992; Reidy, Rhodes, & Mulhall, 2003; Roeser & Eccles, 1998; Ryan & Grolnick, 1986).

Although positive effects have been established for mentoring programs with low-income participants, little is known about how and why mentoring programs are effective. Understanding the mechanisms through which mentoring leads to positive outcomes is important for generalizing positive effects to other interventions. Jean Rhodes has created a widely accepted conceptual model of youth mentoring, in which she

lays out several broad hypothesized mechanisms (Rhodes et al., 2006). Rhodes lays the foundation for future researchers to explore specific practical and functional mechanisms. In this conceptual model, Jean Rhodes highlights three key aspects in which mentors may influence their protégés.

According to Rhodes, the three ways in which mentors bring about constructive change are through (1) social and emotional development, (2) cognitive development, (3) role modeling and identification (Rhodes et al., 2006). Jean Rhodes' hypothesized domains provide a useful framework for understanding how youth mentoring works, but further exploration of more specific and testable mechanisms are necessary to inform intervention.

Locus of control is a noncognitive trait that fits well into Jean Rhodes' social and emotional development domain. Rhodes' describes the social emotional development domain as part of the mentoring function that empowers the youth through providing corrective emotional experiences in the face of adversity (Rhodes et al., 2006). Mentors who are consistent in their relationship with their youth may help them feel worthy of care and effective in attaining it. These youth are then likely to take more initiative in their relationships by soliciting support or help in times of need (Rhodes et al., 2006). These characteristics are similar to those of youth who have higher level of internal locus of control. This present study, hopes to explore locus of control in the context of mentoring and how this may impact the academic success of low-income urban youth.

Locus of Control

Locus of control is described as the degree to which a person believes that he or she has control over personal life events. Individuals with internal locus of control

believe that they can control and manage situations through their own actions. Individuals with external locus of control do not believe that they have control over what happens to them. Having an external locus of control is associated with low levels of resiliency and learned helpnessness, whereas having an internal locus of control is associated with high levels of motivation, persistence, and initiative (Eccles & Wigfield 1995; Harter 1992; Seligman 1975). Locus of control has been positively associated with academic success in terms of academic grades and standardized test scores (Bartel 1971; Buriel 1982; Clifford & Cleary 1972; Finch et al. 1991; Henderson et al. 1992; Lewis et al. 1999; Mone et al. 1995; Morris & Messer 1978; Ross & Broh 2000). It has been found that, for low-income middle schoolers, having an internal locus of control is a positive predictor of achievement and school performance.

Unfortunately, most low-income youth appear to be more external in locus of control than middle and upper class youth (Battle & Rotter 1963; Crandall et al. 1965; Finn & Rock 1997; Garner & Cole 1986; Graves 1961; Novick et al. 1990; Nowicki & Strickland 1973). No studies have examined how mentoring influences locus of control. Researchers have focused on how locus of control (internal v. external) predisposes individuals to mentoring relationships and how locus of control (internal v. external) can be a determinant of mentoring success (Noe, 1988; Turban & Dougherty, 1994). The present study seeks to establish mentorships impact on locus of control with a low-income urban youth sample.

The Cities Mentor Project

The Cities Mentor Project intervention emerged from a study focusing on identifying protective factors for low-income urban youth. The project used the findings

to create a comprehensive intervention that focused on three primary components: 1) training in contextually relevant coping strategies, 2) connecting youth with supportive college-aged mentors that reinforce coping strategies in real world situations, 3) connecting youth with protective settings that provide safe havens in the youth's community. This intervention targeted youth in three Englewood elementary schools in Chicago, Illinois. Youth were randomly assigned to the control group (meaning they did not receive a mentor or any other intervention components) or the intervention group (meaning that they were assigned a mentor and participated in coping training and protective settings). Coping trainings were held at each of the three schools once a month throughout the school year. Mentors attended coping trainings with mentees and continued communication and in-person contact outside of the trainings.

Present Study

The literature has established positive effects for mentoring but little is known about how mentors help youth reach positive outcomes. The present study is designed to address this gap in the literature by exploring locus of controls effects on academic achievement in the context of mentoring with a sample of urban, low-income adolescents. If mentoring pathways are better understood, interventionists can better train mentors and target their efforts and curriculum. The present study will answer the following questions: 1) Is locus of control associated with group identification (control v. intervention) and academic grades (reading, science, and mathematics)? 2) Do youth with mentors have a more internalized locus of control than youth without mentors? 3) Does locus of control predict academic grades (reading, science and mathematics)?

Statement of Hypotheses

Hypothesis I. Locus of control will be significantly correlated with group identification (control v. intervention) and reading, science, and mathematics grades.

Hypothesis II. Youth in the intervention group will have a more internal locus of control than control group youth from Time 1 to Time 4.

Hypothesis III. Locus of control will predict reading, science, and mathematics grades in youth.

Methods

Data

Data for the present study were collected as a part of a larger ongoing, longitudinal study. The overall purpose of the larger study was to develop an intervention that provides coping training, and access to mentors and community organizations, to further develop skills essential for positive youth development. Data were collected at the beginning and end of each school year. The current study uses cross-sectional data from two separate cohorts in the larger study. For both groups of participants, Time 1 represents the beginning of the first school year in the Cities Mentor Project, Time 2 represents the end of the first school year in the Cities Mentor Project. Time 3 represents the beginning of the second school year in the Cities Mentor Project, Time 4 represents the end of the second school year in the Cities Mentor Project.

Research Participants

Eighty-seven 6th grade adolescents (ages 11 to 14) were recruited from three diverse urban schools. The sample was 83.9% African American, 3.4% White, 1.1% Native American, 10% Multiracial, 1.1% unidentified. Participants were 61.4% female and 38.6% male. In the current sample, 48.4% participants were in the control group and

51.6% participants were in the intervention group. The current study used cross-sectional data; participants were part of Cohort 1 (39.1% of sample; 34 participants) and Cohort 2 (60.9% of the sample; 53 participants) as a part of the larger intervention study.

Materials

Locus of Control: The Locus of control subscale on the Behavior Assessment System for Children-Self-Report of Personality (BASC-SRP) was used to complete analyses (Reynolds and Kamphaus, 2006). Examples of items included on the subscale: "I can't seem to control what happens to me" and "I am blamed for things I don't do". Youth could rate each item using the following scale: Never, Sometimes, Often, Always. Higher t-scores on this measure indicate a more external locus of control while lower t-scores indicate a more internal locus of control. The Cronbach alpha for the locus of control subcale was .61.

Academic Achievement: Chicago Public School Report Cards were collected for all youth participants. Grades from core classes such as mathematics, science, and reading were used to complete analyses.

Procedure

Data collection for the present study spanned a total of two years. DePaul University's and the Chicago Public Schools' Institutional Review Boards approved the larger longitudinal study that the data from the present study comes from. The first data collection occurred in Fall 2012 and data has been collected at the beginning and end of each school year since. For the present study, four data points were used. For cohort 1, those data points are: Fall of 2012, Spring of 2013, Fall of 2013, and Spring of 2014. For cohort 2 those data points are: Fall of 2013, Spring of 2014, Fall of 2014, and Spring of

2015. These time points provided the most comprehensive and clean data available to look at the constructs of interest.

At each time period, participants completed a battery of questionnaires that included a subscale measure for locus of control. All questionnaires were completed using an online survey system and took approximately an hour to complete. Academic records were collected from the three target schools.

Results

Descriptive Statistics

Means and standard deviations for locus of control (at all time points) and academic grades (reading, science, math) are presented in Table 1.1 and 1.2. Means and standard deviations for locus of control are as follows: Time 1: M=53.27, SD = 13.345; Time 2: M=54.95, SD =10.651; Time 3: M=54.80, SD = 10.024; Time 4: M=54.34, SD = 12.119. Means and standard deviations for academic grades are as follows: Reading: M=3.08, SD = 1.031; Mathematics: M=2.78, SD =1.270; Science: M=3.34, SD = .946.

Table 1.1. *Descriptive Statistics for Locus of Control and Academic Grades for the Control Group*

Variables	Mean	Range	Std. Deviation
Reading Grade (T2)	3.43	1-5	.948
Science Grade (T2)	3.03	1-5	1.00
Mathematics Grade (T2)	2.78	1-5	1.198
Locus of Control (T1)	52.60	33-76	10.150
Locus of Control (T2)	57.17	36-76	10.324
Locus of Control (T3)	55.17	36-72	8.660
Locus of Control (T4)	57.01	36-80	10.948

Scale for grades: 1=A, 2=B, 3=C, 4=D, 5=F

Table 1.2. *Descriptive Statistics for Locus of Control and Academic Grades for the Intervention Group*

Variables	Mean	Range	Std. Deviation
Reading Grade (T2)	3.26	1-5	.950
Science Grade (T2)	3.14	1-5	1.073
Mathematics Grade (T2)	2.78	1-5	1.355
Locus of Control (T1)	53.84	24-94	15.648
Locus of Control (T2)	53.06	35-76	10.667
Locus of Control (T3)	54.48	34-80	11.138
Locus of Control (T4)	52.06	30-85	12.707

Scale for grades: 1=A, 2=B, 3=C, 4=D, 5=F

Correlations

The present study found significant correlations between age and reading grades (T2), $r = -.375, p < .001$, as well as age and science grades (T2), $r = -.290, p < .005$. These results suggest that the older a child is the higher his or her reading and science grade will be. Age was used as a covariate due to its statistically significant correlation with main study variables. Locus of control (T1) was also significantly correlated with gender $r = -.224, p < .005$. These results suggest that males in this sample had a higher external locus of control than females. Gender was used as a covariate due to its statistically significant correlation with main study variables.

Table 2.1 *Locus of Control, Group Identification, and Demographic Variables: Correlations*

Variables	1	2	3	4	5	6
1. Age	-					
2. Gender	.009	-				
3. Minority Status	.040	-.022	-			
4. Locus of Control (T1)	.136	-.224*	.021	-		

5. Group Identification	.058	.007	.200	.047	–	
6. Locus of Control (T4)	.056	-.038	-.173	.144	-.205	–

*. Correlation is significant at the 0.05 level (2-tailed).

Table 2.2 *Locus of Control, Academic Grades, Group Identification, and Demographics: Correlations*

Variables	1	2	3	4	5	6	7	8	9
1. Group Identification	–								
2. Age	.058	–							
3. Locus of Control (T1)	.047	.136	–						
4. Gender	.007	.009	-.224*	–					
5. Minority Status	.200	.040	.021	-.022	–				
6. Locus of Control (T2)	-.193	-.091	.15**	-.034	.028	–			
7. Science Grade (T2)	.054	-.290*	-.15**	.209	.016	.093	–		
8. Math Grade (T2)	.000	-.177	.06	.125	.181	.127	.681**	–	
9. Reading Grade (T2)	-.091	-.375**	-.091	-.045	-.022	.230	.608**	.565**	–

'. Correlation is significant at the 0.05 level (2-tailed).
'*. Correlation is significant at the 0.01 level (2-tailed).

Hypothesis Testing

Hypothesis I: Locus of control will be significantly positively correlated with group identification (control or intervention) and reading, science, and mathematics grades.

Locus of control was not significantly correlated with group identification (control v. intervention) at any time point: T1, r =.047, p>.05; T2, r = -.193, p>.05; T3, r = -.034, p>.05; T4, r = -.205, p>.05. Locus of control was not significantly correlated to reading grades at any time point: T1, r = -.091, p>.05; T2, r = .230, p>.05; T3, r = -.038,

$p>.05$; T4, $r = .075$, $p>.05$. Locus of control was not correlated with science grades at any time point: T1, $r = -.093$, $p>.05$; T2, $r = .093$, $p>.05$; T3, $r = .043$, $p>.05$; T4, $r = -.038$, $p>.05$. Locus of control was not significantly correlated with mathematics grades at any time point: T1, $r = -.035$, $p>.05$; T2, $r = .127$, $p>.05$; T3, $r = .142$, $p>.05$; T4, $r = -.134$, $p>.05$.

Table 3.1. *Locus of Control and Group Identification: Correlations*

Variables	1	2	3	4	5
1. Group Identification	–				
2. Locus of Control (T1)	.047	–			
3. Locus of Control (T2)	-.193	.138	–		
4. Locus of Control (T3)	-.034	.645**	.673**	–	
5. Locus of Control (T4)	-.205	.144	.332**	-.021	–

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Table 3.2. *Locus of Control and Academic Grades: Correlations*

Variables	1	2	3	4	5	6	7
1. Reading Grade (T2)	–						
2. Science Grade (T2)	.608**	–					
3. Math Grade (T2)	.565**	.681**	–				
4. Locus of Control (T1)	-.091	-.093	-.035	–			
5. Locus of Control (T2)	.230	.093	.127	.138	–		
6. Locus of Control (T3)	.038	.043	.142	.645**	.673**	–	
7. Locus of Control (T4)	.075	-.038	-.134	.144	.332**	-.021	–

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Hypothesis II: Youth in the intervention group will have a more internal locus of control than control group youth from Time 1 to Time 4.

a. Independent Samples T-test

An independent samples t-test was conducted to compare locus of control at Time 1, in control group and intervention group conditions. There was not a significant difference between means for the control group (M=52.60, SD =10.15) and the intervention group (M=53.84, SD =15.648): t(85)=-.431, p=.668.

An independent samples t-test was conducted to compare locus of control at Time 2, in control group and intervention group conditions. There was not a significant difference between means for the control group (M=57.17, SD =10.324) and the intervention group (M=53.06, SD =10.667): t(85)=1.818, p=.073.

An independent samples t-test was conducted to compare locus of control at Time 3, in control group and intervention group conditions. There was not a significant difference between means for the control group (M=55.17, SD =8.66) and the intervention group (M=54.48, SD =11.138): t(85)=.318, p=.752.

An independent samples t-test was conducted to compare locus of control at Time 4, in control group and intervention group conditions. Although not significant the difference between means for the control group (M=57.01, SD =10.948) and the intervention group (M=52.06, SD =12.707) are trending: t(85)=1.929, p=.057. The intervention group had a more internal locus of control than the control group at a trending level.

b. Linear Regressions

A simple linear regression was calculated to predict locus of control at the end of year 1 (Time 2), based on group identification (control v. intervention) while controlling for gender and locus of control at Time 1. The overall model was not significant: F(3,80) =1.919, $p = .133$, with an adjusted R^2 of .032.

A simple linear regression was calculated to predict locus of control at the beginning of year 2 (Time 3), based on group identification (control v. intervention) while controlling for gender and locus of control at Time 1. The overall model was significant: F(3,80) =18.976, $p = .000$, with an adjusted R^2 of .394. In other words, having a mentor significantly predicted a more internalized locus of control at the beginning of year two.

A simple linear regression was calculated to predict locus of control at the end of year 2 (Time 4), based on group identification (control v. intervention) while controlling for gender and locus of control at Time 1. The overall model was not significant: F(3,80) =2.382, $p = .076$, with an adjusted R^2 of .082.

Table 4.1 *Locus of Control Mean and Standard Deviations for Intervention and Control Group*

	Control		Intervention	
	Mean	SD	Mean	SD
Time 1	52.60	10.15	53.84	15.648
Time 2	57.17	10.324	53.06	10.667
Time 3	55.17	8.66	54.48	11.138
Time 4	57.01	10.948	52.06	12.707

Hypothesis III: Locus of Control will predict reading, science, and mathematics grades in youth.

a. Reading

A simple linear regression was calculated to predict reading grades based on locus of control at the end of year 1 (Time 2), while controlling for age. The overall model was significant: $F(2,62) = 6.304$, $p = .003$ with an adjusted R^2 of .142. In other words, locus of control at the end of year 1, did predict reading grades.

b. Science

A simple linear regression was calculated to predict science grades based on locus of control at the end of year 1 (Time 2), while controlling for age. The overall model was significant, at the end of year 1 (Time 2): $F(2,64) = 3.202$, $p = .047$ with an adjusted R^2 of .091. In other words, locus of control at the end of year 1, did predict science grades.

c. Mathematics

A simple linear regression was calculated to predict mathematics grades based on locus of control at the end of year 1(Time 2). The overall model was not significant at the end of year 1 (Time 2): $F(1,66) = 1.090$, $p = .300$, with an adjusted R^2 of .001.

Discussion

The current study aimed to examine the associations between locus of control, group identification (control v. intervention), and academic grades (reading, science, mathematics). No significant associations were found between locus of control and group identification (control v. intervention) or academic grades (readings, science, mathematics). The current study did find that group identification (control v. intervention) significantly predicted locus of control when controlling for gender. Locus of control also did significantly predict reading grades, when controlling for age and group identification. Locus of control did not predict science or mathematics grades in the present study. A discussion of the aforementioned findings are provided below.

a. Correlational Relationships

The current study found no significant correlations between locus of control and group identification (control v. intervention) or academic grades (reading, science, math). The current study did find significant correlations with age and reading grades, as well as with age and science grades. In other words, as age increases so do reading and science grades. Gender was also significantly correlated with locus of control, such that males had a higher external locus of control than females. This finding is contrary to a large number of prior research studies asserting that males often have a higher internal locus of control than females (Akhtar &Saxena, 2014; Lal, 1985). Although this finding does not represent the typical association between gender of locus of control, race may have impacted he results. Other researchers have found that African American students are significantly more external in locus of control than Caucasian students (Finn &Rock, 1997). This is may be due to the systemic effects of racism that African American males face in US society. African American males are especially stigmatized and disenfranchised, which likely leads to beliefs of lack of control over personal life events. When attempting to increase internal locus of control within minority populations it is important for interventionist to specifically target and monitor minority males.

b. Locus of Control and Group Identification

The present study found no significant differences in locus of control means between the control and intervention group at Time 1, Time 2, or Time 3. At Time 4, differences in locus of control means between the control and intervention group were trending. The intervention group had a more internal locus of control than the control group at a trending level. The present study found that when accounting for gender as a covariate, group identification (control v. intervention) significantly predicted locus of

control at the beginning of year 2 (Time 3). This finding tells interventionists, that by providing youth with mentors we may be able to increase a child's internal locus of control. Nurturing a more internal locus of control in turn can have a major impact on a child's academic future. Research shows that having an internal locus of control in low-income middle schoolers is a positive predictor of school achievement and performance (Battle & Rotter 1963; Crandall et al. 1965). Interventionists should begin exploring ways to enhance the effect of mentoring on locus of control through curriculum enhancements or mentor training around the construct.

c. Locus of Control and Academic Variables

The present study found that locus of control did not significantly predict mathematics grades in the present sample. However, the present study did find that when controlling for age, locus of control did predict reading and science grades. This particular finding is consistent with previous research stating that locus of control is positively correlated with academic grades and success (Bartel 1971; Buriel 1982; Clifford & Cleary 1972; Finch et al. 1991; Henderson et al. 1992; Lewis et al. 1999; Mone et al. 1995; Morris & Messer 1978; Ross & Broh 2000). Future studies should replicate this finding using longitudinal data opposed to cross-sectional data.

d. Limitations

One potential limitation of the current study is that cross-sectional data were used to conduct the linear regressions for locus of control and academic grades. Academic grades and locus of control data were collected at the same time points, which leaves the directionality of the associations unconfirmed. Future studies should replicate the findings using a longitudinal data set.

The current study also used a subscale measure to assess locus of control in youth. Other comprehensive and specific measures of locus of control (i.e. academic locus of control) exist and may provide a more thorough view of locus of controls associations with mentoring and academic grades. This may explain why no significant finding was found for mathematics grades in the current sample. Selecting a more widely used and specialized measure also allows for comparisons amongst similar studies. It would also allow for more specific conclusions to drawn.

Lastly, this study was conducted using data collected from a school-based intervention with an urban low-income sample. It is common to see null results when evaluating school-based interventions serving youth in the context of urban poverty and stress (Farahmand, Grant, Polo, & Duffy, 2011). This likely explains why we did not find correlations between main study variables as hypothesized and why locus of control means did not significantly differ between control group and intervention group. Finding significant results is difficult when working with a population that contends with severe life stressors and need more intensive support than one intervention alone can provide. The unlikelihood of reporting significant findings when working with urban youth in school based interventions makes the significant findings discussed even more crucial. Findings should be replicated in other school-based interventions to confirm generalizability.

e. Future Directions

A study of this nature is important to replicate so that the mentoring community better understands how and why mentoring works and does not work. Rhodes theorizes that mentoring brings about change through three domains: (1) social and emotional

development, (2) cognitive development, (3) role modeling and identification. We do not yet know what constructs within these domains lead our youth to the substantiated positive outcomes of mentoring. In the present study, simple associations were examined to determine whether locus of control is one of the constructs that better explains the social-emotional domain of Jeans Rhodes conceptual model. This study found that having a mentor predicted higher levels of internal locus of control. This study also found that locus of control did predict reading grades in our sample. Although confirmatory studies are needed, these findings suggest that locus of control more specifically describes how mentoring leads youth to the positive outcomes Jean Rhodes describes.

Researchers should begin by examining the amount of mentoring necessary for significant changes in locus of control to occur. It would then be prudent to continue to explore locus of controls relationship with academic variables in the context of mentoring. It will also be important to explore mediating relationships between the variables in the current study to further confirm through that locus of control is "how" positive academic outcomes are achieved. Understanding the "how" and "why" of mentoring would allow for interventionists to better tailor programming, train mentors, and enhance curriculum objectives and activities, so the most salient skills and experiences are transmitted to our youth.

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