



The role of delay of gratification, substance abuse, and violent behavior on academic achievement of disciplinary alternative middle school students



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ABSTRACT

Disciplinary alternative education programs are academic environments where students are detained for 45 days by the county or court for delinquent and/or deviant behavior in their traditional schools. This study examined individual differences in academic performance, violence, willingness to delay gratification, and substance abuse of 391 students enrolled in a disciplinary alternative middle school program. Results revealed that students who reported a high propensity to delay gratification and low tendencies towards violent behavior and substance abuse obtained high math scores on the state standardized test. In addition, the negative association between violent behavior on math scores was attenuated by race/ethnicity status. Socio-economic status was not significantly associated with math test scores. Implications for further studies and educational implications are discussed.

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1. Introduction

Adolescence is a critical period in human development. It represents a transition from childhood to adulthood involving considerable physical, social, cognitive, and emotional changes. A key component in adolescents' successful negotiation during this period is their ability to acquire self-regulatory skills, most notably their proclivity to delay gratification (Bembenuity, Cleary, & Kitsantas, 2013). In academic contexts, *academic delay of gratification* refers to learners' willingness to self-regulate in terms of postponing immediate, available rewards for the sake of pursuing temporarily distant and valuable goals, such as obtaining a college degree in order to get the dream job after graduation rather than quitting school and ending with a less desirable job (Bembenuity & Karabenick, 1998). The desire to delay gratification is one of the self-regulatory skills known to alleviate challenging life stressors such as aggression, negative peer interactions, academic expectations, and pressure to take part in deviant behavior such as

substance abuse and violent behavior (Ayduk et al., 2000; Herndon & Bembenuity, 2014; Mendoza-Denton, Freitas, & Downey, 1997). Often, students who are not able to engage successfully in delay of gratification end up having conflict with the law, in the school, and at home (Herndon & Bembenuity, 2014). As a consequence, through court order or by family decision, they find themselves assigned to disciplinary alternative education programs (DAEPs). During their detainment at these alternative schools, some adolescents succeed in enhancing their abilities to self-regulate and delay gratification while others do not (Herndon & Bembenuity, 2014). The present study examined academic delay of gratification as a central variable that accounts for such individual differences among students enrolled in these alternative disciplinary schools.

Furthermore, this study analyzed whether academic delay of gratification is associated with the performance of middle school students enrolled in a disciplinary alternative school on a state required math standardized test. We considered the association between academic delay of gratification, substance abuse, and violent behavior on academic achievement among at-risk adolescents. We also explored gender, racial/ethnic, and socioeconomic differences after controlling for the effects of academic delay of gratification, violent behavior and substance abuse while assessing the direct and indirect relationships between these variables and academic performance.

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1.1. Theoretical framework

Adolescence has been construed as a period of tumult and rapid changes associated with mood disruptions, conflict with parents, and risky behavior (Lerner & Steinberg, 2009). Improving a child's capacity to self-regulate as it pertains to delay of gratification can aid in buffering the challenges that child will face during their adolescence, particularly at school (Herndon & Bembenuity, 2014). Substance use and violent behavior are problems that interfere with learning and academic achievement. Adolescents that engage in continued substance abuse and/or violent behavior tend to have more disciplinary issues at school and confrontations with the law, ultimately leading to placement in DAEPs, juvenile justice facilities, and/or dropping out of the educational system entirely.

The classic work of Mischel on the *marshmallow test* construed delay of gratification as a competency or aptitude that could be strengthened through use of academic strategies specific to gratification delay (Mischel, 1996). Mischel's contributions facilitated the integration of delay of gratification into the large constellation of self-regulation. Recent research on self-regulation (Zimmerman, 2008, 2013) asserted that helping individuals to acquire self-regulatory skills promotes successful adaptation to academic, social and environmental challenges. Zimmerman proposed that highly motivated and self-efficacious learners who seek help from appropriate peers and adults, self-monitor their own goals, engage in self-control, and self-evaluate academic outcomes are those who are more academically successful. Successful self-regulation requires remaining task-focused when facing competing alternatives to temporarily distant but valuable goals. To be successful over the long term, adolescents need to make appropriate choices, be self-directed and self-efficacious, be proactive learners, and delay gratification. A myriad of research supports Zimmerman's theory (Baumeister & Vohs, 2007; Bembenuity et al., 2013; DiBenedetto & Bembenuity, 2013; Zimmerman & Schunk, 2011).

Studies have shown a relationship between race/ethnicity, socioeconomic status, and free or reduced school lunch and their negative association on math test performance (Nisbett, 2011). Adolescents that engage in deviant behavior often live in low socioeconomic neighborhoods where crime and drug use is often present (Anderson-Butcher, Lawson, & Barkdull, 2003). Male youth tend to display more aggressive behavior and have more encounters with the law than female youth.

According to Grunbaum, Kann, and Kinchen (2000), the rapid advancement of delinquent and violent behavior in our youth inside and outside the classroom has manifested itself in the proliferation of disciplinary alternative education programs (DAEPs). Failure in students to manage their impulses in relation to gratification control has been directly linked to deviant behavior that is increasingly destructive and even deadly, such as violence (Dolan & Fullam, 2004; Tangney, Wagner, Barlow, Marschall, & Gramzow, 1996) and substance abuse (Ayduk et al., 2000), giving rise to the realization that a student's inability to sufficiently delay gratification may be a gateway to a multitude of societal ills that permeate into our schools (Wulfert et al., 2002). Nowhere is the need to understand the interrelationships among these variables more important than with those youth already identified as at-risk due to being sent to alternative schools for primarily behavioral and disciplinary reasons.

1.2. The present study

The aims of the present study were fourfold. First, we examined the strength of association between academic delay of gratification, violent behavior, substance abuse, and math test scores. Second, we investigated whether students differed with regard to their tendencies towards delay of gratification, violent behavior, substance abuse, and math test scores based on gender, race/ethnicity, and SES. Third, we analyzed whether group means on math test scores differed after controlling for the effects of academic delay of gratification, violent behavior, and

substance abuse. Fourth, we examined the direct and indirect effect of these variables on math test performance. We expected that delay of gratification would mediate the effect of the categorical and continuous variables on math test performance and investigated whether the hypothesized model displayed in Fig. 1 fit the data well by using data from middle school students enrolled in an alternative disciplinary school. We considered that females would have higher math test scores, and this effect would be mediated positively through academic delay of gratification and negatively through violent behavior and substance abuse. SES was presupposed to have a negative direct effect on math test scores mediated negatively through delay of gratification and positively through violent behavior and substance abuse. We hypothesized that race/ethnicity, with a comparison group indicating Caucasian youth, would have a positive direct effect on math test scores mediated positively through academic delay of gratification and negatively through violent behavior and substance abuse, with the understanding that these associations are a function of socioeconomic status rather than ethnic group inherent characteristics. Finally, we speculated that academic delay of gratification would have a direct effect on math test scores. Alpha estimates of reliability provided in the study are collected from this study's data.

2. Method

2.1. Participants

The participants in this study ($N = 391$) were middle school children chosen from an alternative learning school. The alternative school is comprised of a rotating population of students that must serve for 45 "good" days, which means 45 school days without disciplinary suspension or unexcused absence. Upon successful completion of the program, they are reinstated back to their original schools. 53% were male, 56% were Caucasian, 15% were African American, 28% were Hispanic, and 2% chose "other" for their racial/ethnic identity. 88% of our sample received free or reduced school lunch.

2.2. Measures

2.2.1. Academic delay of gratification

The 10-question Academic Delay of Gratification Scale (ADOGS; Bembenuity & Karabenick, 1998) assessed students' willingness to make choices based on long-term consequences rather than short-term, desirable rewards (e.g., "Stay in the library to make certain that you finish an assignment in this course that is due the next day, OR Leave to have fun with your friends and try to complete it when you get home later that night"). Participants answered by using a 4-point Likert scale: *Definitely choose A*; *Probably choose A*; *Probably choose B*; and *Definitely choose B* ($\alpha = .74$).

2.2.2. Substance use

Substance Abuse Screening Test (CRAFFT; Knight, Sherritt, Shrier, Harris, & Chang, 2002) assessed teenagers' involvement in substance abuse. The test is a 6-item survey (an answer of yes is one point) that tests for alcohol, marijuana, and serious drug use. An example question is "Do you ever use alcohol or drugs while you are by yourself, alone?" ($\alpha = .79$).

2.2.3. Violent behavior

The Anger Response Inventory (ARI; Tangney, Wagner, Marschall, & Gramzow, 1991) assessed responses to a succession of hypothetical events intended to evoke anger. Participants used a 5-point Likert scale to rate four separate categories: (a) their level of anger in each scenario, (b) what each scenario makes each student *wish* they could do, (c) what they feel they actually *will* do, and (d) their self-evaluation of the aftereffects of their imaginary actions in terms of not only themselves, but the object of their anger as well as their relationship ($\alpha = .88$).

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