



Sensation seeking and high school performance



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ARTICLE INFO

Article history:

Received 6 October 2016

Received in revised form 26 May 2017

Accepted 30 May 2017

Available online 3 June 2017

Keywords:

Sensation seeking

Academic performance

Gender

Personality

ABSTRACT

Previous studies have shown that Sensation Seeking, one of the traits most related to risk taking behavior, is associated with lower academic performance in students with primary and secondary levels of education. Given the relevance of identifying early outcomes of sensation seekers to prevent negative risk taking, the present study explored the relationship between sensation seeking and academic performance in a sample of 216 high-school students (55.6% girls) aged 16 to 18 years old. We administered the Spanish version of the Junior Sensation Seeking Scale (J-SSS) and collected average grades and specific grades from four mandatory school subjects offered in the same semester. Results showed that girls obtained significantly higher average grades and that academic performance was associated with low scores in sensation seeking in both genders. Furthermore, gender and J-SSS scores were the predictors of academic achievement ($R^2 = 0.073$). Results are discussed in terms of the implications of sensation seeking in academic achievement, and we conclude that individualized education programs would include specific interventions for those scoring high on sensation seeking in order to facilitate their academic achievement.

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1. Introduction

Dispositional theories of personality have long studied the Sensation Seeking (SS) trait to understand, describe and predict risk taking behavior defining it as “the seeking of varied, novel, complex, and intense sensations and experiences, and the willingness to take physical, social, legal, and financial risks for the sake of such experience” (Zuckerman, 1994, p. 27). This trait has strong psychobiological correlates, with males scoring higher than females (Zuckerman, 2005) and following a curvilinear pattern that increase between ages 10–15 and decline or remain stable thereafter (Muro, Gomà-i-Freixanet, & Adan, 2012).

The Sensation seeking trait has important behavioral implications specifically at adolescence since this developmental period is particularly sensitive to the engagement in risk-taking activities which may result in inadequate decision making with negative outcomes (Gomà-i-Freixanet, Grande, Valero, & Puntí, 2001; Legrand, Gomà-i-Freixanet, Kaltenbach, & Joly, 2007; Steinberg, 2007) that ultimately may result in poor academic performance/achievement. A study using the SS (Aluja-Fabregat & Torrubia, 1998) conducted with a sample of 470 adolescents from secondary levels of education found that boys scoring high on SS, impulsivity and aggressiveness performed worse at school. Disinhibition and Experience Seeking subscales were the most associated with school achievement, with low but significant correlations of -0.24 and -0.17

respectively. These associations were not found in girls, suggesting that gender is an important variable to control for when studying the relationship between SS and school performance. This study concluded that the increase disinhibited personality profile of boys probably impaired academic achievement.

Empirical results also suggest that the propensity to engage in sensation seeking behaviors interact with environmental characteristics. A recent study by Eklund and Fritzell (2013) has found that school influence is one of the most relevant environmental factors for adolescents engaging in sensation seeking behaviors. This study conducted with 5619 adolescents from 89 secondary schools showed that high scores on sensation seeking were associated with low achievement, disadvantaged school settings and an increased risk for delinquency. Results showed that impulsive and sensation seeking adolescents had less delinquency and higher achievement if they attended the advantaged schools. However, the SS trait was assessed with a scale made up of five items based on the impulsivity and thrill-seeking scales of the Youth Psychopathic Traits Inventory (Andershed, Kerr, Stattin, & Levander, 2002).

A meta-analysis study exploring the relationship between personality and academic achievement showed that Conscientiousness, which is inversely correlated with SS, is the strongest and most reliable personality variable associated with academic performance at all levels of education (Poropat, 2009). Interestingly, it has been reported that girls at around 16 years old score significantly higher on conscientiousness, suggesting that girls' advantage in academic settings might be mediated by their higher conscientiousness and lower disinhibition (Aluja-Fabregat & Torrubia, 1998; Fischer, Schult, & Hell, 2013). It has also been suggested

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that the general girls' advantage might be due to their better verbal and language skills, and although gender differences in school achievement are rather small, with an overall estimated d of 0.225 (Voyer & Voyer, 2014), the female advantage in school grades is a common finding in the literature (e.g., Gomà-i-Freixanet, García, & Pérez, 1991).

Some other lines of research on academic performance have focused on study habits as well-planned and deliberated patterns of study that need high constancy on the part of the students toward understanding academic subjects and passing examinations (Kaur & Pathania, 2015). For example, Azikiwe (1998) defines a study habit as the way a student plans his private readings, after classroom learning, in order to attain mastery of the subject. Consequently, study habits entail the adoption of behavioral routines that facilitate attentional focus on cognitive performance, such as reading and comprehending. At this point, it is worth noting that the traits that are associated with SS and reward sensitivity are also associated with attentional and behavioral disorders such as Attention Deficit Hyperactivity Disorder (Graziano et al., 2015). Therefore, from this evidence it is not surprising to find a negative association between SS and academic achievement (Aluja-Fabregat & Torrubia, 1998; Eklund & Fritzell, 2013; Schmitz & Wilhelm, 2014).

The association between personality and academic achievement has been studied at the primary and secondary levels of education, but results are inconsistent regarding sex differences: at primary schooling, gender was not significant, while at secondary schooling the effect was only found in boys. The aim of the present study was twofold: a) to explore and replicate previous findings on the relationship between gender, sensation seeking and academic performance in a group of adolescents attending secondary levels of education; and b) to find out if gender, age and/or SS predicted academic achievement. We hypothesized that lower academic performance would be associated with higher scores on SS only in boys and that girls would outperform boys.

2. Methods

2.1. Participants

An initial sample of 230 students from three representative charter high schools from Barcelona province participated in this study. Only those participants (93.9%) who entirely answered the questionnaire were included in the data analyses. The final sample ($n = 216$) consisted of 120 girls (55.6%) and 96 boys, with ages ranging from 16 to 18 years old ($M = 16.91$; $SD = 0.71$).

2.2. Materials

To assess the sensation seeking trait, the Spanish version of the Junior Sensation Seeking Scale (J-SSS; Pérez, Generós, Plá, & Simó, 1986) was administered. This is an adaptation for adolescents of the Sensation Seeking Scale for adults (Zuckerman, Eysenck, & Eysenck, 1978). The J-SSS includes a total score (J-SSS) and four subscales assessing: Thrill and Adventure Seeking (TAS), Experience Seeking (ES), Disinhibition (Dis), and Boredom Susceptibility (BS). The TAS subscale contains items expressing a desire to engage in sports or other physically risky activities that provide unusual sensations of speed or defiance of gravity, such as parachuting, scuba diving, or skiing. Because most of the activities are not common, the majority of the items are expressed as intentions ("I would like...") rather than reports of experience. An attitude item that summarizes the factor is "I like risky sports very much." The ES subscale encompasses items measuring the seeking of novel sensations and experiences through the mind and senses, travelling, or being unconventional. The Dis subscale contains items describing seeking sensations through social activities such as parties, social drinking, and sex. Finally, the BS subscale measures intolerance for repetitive experiences of any kind, including routine work and boring people. The final total score of the J-SSS is obtained by summing up the four subscales. The scale contains 40 dichotomous items, with scores ranging from 0 to 40 (highest sensation

seeking score). This version also includes a Lie subscale (10 items), assessing social desirability. The internal consistency of the J-SSS for the present sample was $\alpha = 0.77$ and those of the subscales were: TAS = 0.75; ES = 0.72; Dis = 0.69 and BS = 0.64. The reliability of the total scale is similar to that found by the author (Zuckerman et al., 1978). Table 1 shows the correlations between the total scale and the subscales. Correlations among subscales show a reasonable degree of independence and a satisfactory close relationship with the total score.

Additionally, we requested the student's current semester grades from their corresponding tutors in order to obtain objective data of their academic performance. Average and exam grades are considered useful measures of academic performance (Poropat, 2009). For the present study, tutors facilitated the students' academic transcript. Researchers registered the grades of four compulsory subjects shared by all High School groups: Philosophy, Native Language (Spanish, Catalan) and Foreign Language (English). It is worth noting that scores from language-based reasoning subjects are suggested to be good predictors of the overall average grade (García, Alvarado, & Jiménez, 2000) and the average grade of the current semester was also obtained calculating the mean grade of each student's academic record. Spanish academic grading system is based on a scale ranging from 0 to 10 (maximum grade).

2.3. Procedure

Educational services from Barcelona provided a list with the 23 charter high schools in the province of Barcelona. A charter school is a public school that receives government funding but operates independently of the established public school system in which it is located. From this list, five schools were randomly selected to participate in the study design. Two of them did not accept to collaborate. The number of students per class ranged between 28 and 32 students, resulting in an initial sample of 364 students. Analyses showed that the three schools that participated in the study did not show significant differences in any of the sociodemographic variables recorded.

High school headmasters and parents were informed and gave consent prior to participants' inclusion in this study. Some students were discarded for not having parental consent: 34% from one school, 28% from the second school and 38% from the final school. In total, 230 students participated in the study, but only 216 (93.91%) were included in the analyses since the rest did not complete one or more items of the questionnaire.

There are no significant differences between the average grade of the students who didn't answer the questionnaire for not having parental consent, the average grade of those students who left one or more items blank, and the selected sample ($F = 2.66$; $p = 0.107$).

The questionnaire was administered by the research assistants and participants completed the questionnaire voluntarily in classroom settings. The administration process was conducted in groups of 20 to 25 students. When giving instructions, research assistants explained that the results would be treated confidentially. Students did not receive any academic or economic reward for their collaboration. The Ethical Committee of the university and the high schools' management teams approved the protocol.

Table 1
Inter-correlations of the sub-scales.

	ES	Dis	BS	JSSS
TAS	0.21*	0.31*	0.11	0.69*
ES		0.26*	0.14	0.61*
Dis			0.23*	0.70*
BS				0.56*

Notes: J-SSS = Junior Sensation Seeking Scale;

TAS = Thrill and Adventure Seeking; ES = Experience Seeking;

Dis = Disinhibition; BS = Boredom Susceptibility.

* $p < 0.001$.

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