



Does impulsivity influence performance in reasoning?

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Abstract

The influence of impulsivity on reasoning was investigated in a sample of 108 high school and university students. Impulsivity was represented by the PRF Impulsivity Scale [Jackson, D. N. (1974). *Manual for the Personality Research Form* (2nd ed.). Goshen: Research Psychologists Press.], the MMPI Impulsivity Scale [Gough, H. G. (1957). *California psychological inventory manual*. Palo Alto: Consulting Psychologists Press.] and the FPI Impulsiveness Scale [Fahrenberg, J., Hampel, R., & Selg, H. (1994). *Das Freiburger Persönlichkeitsinventar FPI. 6. Aufl.* Göttingen: Hogrefe.]. Reasoning was measured by the Figural Reasoning Scale (Horn, W., 1983) and the Numeric/Alphabetical Reasoning Scale [Horn, W. (1983). *Leistungs-Prüf-System*. Göttingen: Hogrefe.]. Furthermore, measures of neuroticism, extraversion, achievement orientation and surgency were applied. Substantial negative correlations of reasoning with impulsivity and neuroticism were observed. Structural equation modeling was applied to predict reasoning by means of an impulsivity composite. A path coefficient of -0.33 was observed. This result suggests the interpretation that a high degree of impulsivity impairs performance in completing reasoning tasks. © 2002 Elsevier Science Ltd. All rights reserved.

1. Introduction

Impulsivity is a trait which is ascribed to persons a major characteristic of which is that their behavior is to a considerable degree guided by impulses. Persons high in impulsivity prefer the immediate over the well-reasoned response. In such persons new stimuli are rather likely to interrupt the execution of well-conceived behavioral plans which are unrelated to the new stimuli. Although impulsive behavior seems to be easily identifiable, impulsivity is described rather differently. In their attempt to clarify the meaning of impulsivity Depue and Collins (1999) found that it is characterized as including various lower-order traits such as sensation seeking, novelty seeking, boldness, adventuresomeness, boredom susceptibility, unreliability, and unorderliness. Furthermore, in the Diagnostic and Statistical Manual for the Mental Disorders (DSM-IV;

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American Psychiatric Association, 1994) impulsivity is associated with various disorders such as impulse-control disorders, antisocial personality disorder, mania, and dementia.

A look at the various models of the structure of personality can help to obtain a better image of impulsivity. The 1977 version of Eysenck and Eysenck's (1977) three factor theory of personality includes four specific dimensions of impulsivity: narrow impulsiveness, risk-taking, non-planning, and liveliness. The first of these dimensions was shown to be associated with neuroticism and the other ones with extraversion. Irrespective of these dimensions, impulsivity led to a robust factor in an attempt to construct a single scale (S. B. G. Eysenck, Pearson, Easting, & Allsopp, 1985) which even showed cross-cultural consistency (S. B. G. Eysenck, Daum, Schugens, & Diehl, 1990). In Cloninger's model of personality which includes four temperament dimensions impulsivity is an aspect of novelty seeking (Cloninger, Svrakic, & Przybeck, 1993). According to Cloninger impulsivity is the biology-based tendency to respond fast to novel stimuli. The three factor model of personality by Tellegen (1982) also includes the aspect of impulsivity. This model is constituted by the factors positive emotionality, negative emotionality and constraint. A low degree of constraint is closely associated with a high degree of impulsivity. Finally, the Five Factor Model of Personality is to be considered. Costa and McCrae (1992) note that the neuroticism and conscientiousness factors include impulsivity facets.

The various representations of impulsivity led Whiteside and Lynam (2001) to investigate the structure of impulsivity. They applied a large number of impulsivity scales to a sample of over 400 young adults and identified four impulsivity factors by means of exploratory factor analysis. They labeled these factors urgency, (lack of) premeditation, (lack of) perseverance, and sensation seeking. Most of the intercorrelations between the corresponding scores were low to moderate indicating a considerable degree of heterogeneity among the facets of impulsivity. Thus, the conceptual variety associated with the various models of personality finds its explanation.

Impulsivity is also regarded as a cognitive style (Kagan, 1965; Kagan, Moss, & Sigel, 1963) showing two extremes one of which is denoted impulsive style and the other one reflective style. The impulsive style is characterized by fast decisions of which the certainty of being correct is low whereas the reflective style denotes the preference for late decisions associated with a high degree of certainty. The cognitive style has been assessed by means of tests which require the detection of differences between similar figures, and it has served well in describing children's behavior (Messer, 1976). The investigation of impulsive behavior in children is especially attractive because the children's behavior reflects social norms to a lower degree than the adults' behavior.

Furthermore, it needs to be emphasized that impulsivity is considered as a temperament (Buss & Plomin, 1975; Cloninger et al., 1993). A temperament is defined as a characteristic style of behaving, which is hereditary (Allport, 1961). However, evidence concerning heredity of impulsivity is not unequivocal. Pedersen, Plomin, McClearn, and Friberg (1988) provided positive evidence whereas Buss and Plomin (1984) did not. Additional support for the assumption of heredity results from the observation of impulsive behavior in children since children's behavior is less determined by experiences than the adults' behavior.

1.1. Possible consequences of impulsivity for reasoning

Since impulsivity tends to interrupt the execution of well-conceived behavioral plans, a disadvantageous influence on performance can be expected when the demands are complex.

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