

Some Social and Personality Correlates of Cognitive Dysfunction

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Abstract-Personality is one of those concepts that is familiar to everyone but is difficult to define, most people use the term, 'Personality' to identify the most obvious characteristics of a person, or to refer to that person's social skills.

Cognition refers to mental activity, describes the acquisition, storage, transformation and use of knowledge which includes attention, working memory, and executive function including initiative, decision making, and problem solving. In cognitive psychology, the term 'performance' refers to the measurement of several processes that can be represented both in cognitive and somatic functions of the brain. "The term performance denotes abilities and skills from the psychological functional ranges of perception, attention (concentration), learning and retention, thinking and intelligence, and psychomotor activity, all of which can be assessed by test". So, cognitive performance is not defined by a single value like the intelligence quotient but rather as a combination of performance of several cognitive functions and processes. Cognitive performance can be assessed by using many tasks, such as subjective measures, reaction time, memory tasks, reading comprehension, arithmetical operations, time estimations, or logical reasoning. All these tasks are the output of basic cognitive processes that are the building blocks of higher cerebral functions and human behavior. There are three basic cognitive processes that may be the bases of cognitive performance namely attention, working memory, and executive functions. Attention is the capacity to interact efficiently with the environment and includes components of tonic alertness, selective attention, and sustained attention.

Keyword: - Personality, Cognition, Attention, Function.

Introduction-Personality is one of those concepts that is familiar to everyone but is difficult to define, most people use the term, 'Personality' to identify the most obvious characteristics of a person, or to refer to that person's social skills. A substantial body of evidence suggests that

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individual differences in the personality trait of extraversion are associated with individual differences in the way basic cognitive processes are carried out. These basic cognitive processes include the retrieval of information from short- and long-term memory.

Factor analyses of extraversion scales indicate that this broad trait consists of several closely associated traits. These include impulsivity, sociability, adventurousness, enthusiasm, high activity level, and boredom proneness.¹

Recently, researchers have attempted to identify the specific characteristics of extroverted individuals that account for the overall relation between extraversion and cognitive functioning. This paper suggests that impulsivity is the component of extraversion that is most consistently associated with individual differences in the way very basic perceptual and memorial processes are executed.

The present work was designed to examine in more detail this social and personality-cognition relation. The studies reported here sought to distinguish between different types of impulsivity and to determine which type accounts for the relationship found between broad measures of impulsivity and measures of cognitive dysfunctioning.

Impulsivity can be defined as the tendency to deliberate less than most people of equal ability before taking action. The consequences of this lack of deliberation for cognitive dysfunctioning seem to be viewed generally as negative.

Recent work on the relationship between impulsivity and cognitive functioning, however, suggests that the consequences of impulsivity are not always negative. For example, when the experimental task is very simple, high impulsive rapid re-ponding has little cost in errors. And when the time available for making a decision is extremely brief, high impulsive are actually more accurate than low impulsive.²

One question raised by these findings is whether the factors that cause people to respond quickly and inaccurately when this style of responding is a source of difficulty are the same factors that cause people to respond quickly and inaccurately when this style is optimal. It could be that there is a general tendency to respond quickly and inaccurately that is sometimes a source of difficulty and sometimes beneficial. Or, it could be that there are two separate traits, one that results in rapid inaccurate performance in situations where this is optimal and the other that results in rapid, inaccurate performance in situations

where this is non optimal. The former trait will be referred to here as functional impulsivity, and the latter trait will be referred to as dysfunctional impulsivity. The studies described here sought to determine whether these two traits can be empirically distinguished.³

The aim of the study was to determine whether it is possible to discriminate within the self-report domain between functional and dysfunctional impulsivity. The approach taken was to write a large number of items designed specifically to tap these two types of impulsivity and then to factor-analyze subjects responses to these items in order to see whether the two hypothesized factors would emerge.⁴

Table – Eigen values and Percentage of Variance Accounted for by the Factors

Factor	Eigen value	Variance accounted for (%)
1	8.8	23.0
2	6.0	15.0
3	2.8	7.2
4	1.7	4.2
5	1.2	3.0
6	1.1	2.7
7	1.0	2.6

Method

Measures-The item pool used in this factor analysis contained 17 items written to tap functional impulsivity and 23 items designed to tap dysfunctional impulsivity. There were also 23 filler items.

Procedure-The items were administered to 477 undergraduates (209 men and 268 women) who were serving in the study to fulfill a course requirement. Subjects were tested in groups of 10-20 persons. Each session lasted approximately half an hour.

Results-The correlation matrix for the 63 items was factor-analyzed using the principal axis method, with the communalities estimated iteratively. The criterion for factor extraction was an eigen value equal to or greater than 1. Seven factors met this criterion. The eigen values and the percentage of variance accounted for by these seven factors are presented in Table.

The factor matrix was rotated using an oblique rotation. The first two factors that emerged from this analysis clearly represented the two hypothesized components of impulsivity. The 11 items that loaded over .30 on Factor 1 had all been written to tap functional impulsivity, whereas the 12 items that loaded over .30 on Factor 2 had all been

written to tap dysfunctional impulsivity. No item loaded over .30 on both Factor 1 and Factor 2.

The items loading on the third factor appeared to reflect a concern about making mistakes. The items loading on the fourth factor seemed to represent the tendency to dislike jobs that require careful attention. The items loading on the fifth factor appeared to concern the tendency to plan ahead, to consider the long-range consequences of actions. The items loading on the sixth factor seemed to reflect the tendency to pause before making decisions. And the items loading on the seventh factor appeared to represent a dislike of acting quickly in general, whether the actions involve decisions or not.

Factor 1 (Functional Impulsivity) and Factor 2 (Dysfunctional Impulsivity) correlated .07. Functional Impulsivity correlated -.35 with Factor 6 (Pausing before Decisions). Dysfunctional Impulsivity correlated .33 with Factor 4 (Disliking Jobs That Require Careful Attention) and -.57 with Factor 5.

The 11 items that loaded above .30 on Factor 1 were combined to create a Functional Impulsivity scale; the internal-consistency reliability of this scale was .83. The 12 items that had loaded above .30 on Factor 2 were also combined to create a Dysfunctional Impulsivity scale; the alpha for this scale was .86. The correlation between these two scales was .22.

Discussion-The present study also indicated that existing global self report measures of impulsivity tap both functional and dysfunctional impulsivity. Although most of these global measures appear to tap dysfunctional impulsivity somewhat more than they do functional impulsivity, either of these two types of impulsivity could account for a particular association between a global impulsivity measure and another personality or cognitive variable. provided evidence for an association between functional impulsivity and the speed and accuracy with which subjects carry out the processes involved in the comparison of visual stimuli. Dysfunctional impulsivity showed no such relation to these processes.

It is not clear why dysfunctional impulsivity failed to show a relationship with speed or accuracy in the present study. One possibility is that dysfunctional impulsive adopt rapid, inaccurate information-processing strategies only under certain circumstances.

The complex interaction between Functional Impulsivity, Dysfunctional Impulsivity, and Figure Complexity that approached

significance for score is difficult to interpret. It may be that individuals who are both low in functional impulsivity and high in dysfunctional impulsivity have particular difficulties in carrying out tasks, such as comparing simple figures, where very rapid information processing is the optimal strategy.

It is worth noting that an earlier study using the same figures that were used in the present study found a significant interaction between impulsivity and figure complexity of a different.

Conclusion-This study provided evidence that functional and dysfunctional impulsivity can be distinguished within the self-report domain. Both traits appear to involve the tendency to deliberate less than most people of equal ability before taking action. For individuals high in functional impulsivity, this tendency has positive consequences and is a source of pride, but for individuals high in dysfunctional impulsivity, this tendency leads to difficulties. The relatively low correlation between the two traits (.07 for the factors and .22 for the derived scales) provides evidence that the two traits are sufficiently independent to be worth examining separately.

Study provided additional support for the usefulness of making the distinction between functional and dysfunctional impulsivity. As in the first study, the correlation between the Functional and Dysfunctional Impulsivity scales was relatively low.

In addition, there were different patterns of correlations between each type of impulsivity and the other personality traits studied. Functional impulsivity was more closely associated with enthusiasm, adventurousness, and activity than was dysfunctional impulsivity. The closer association between functional impulsivity and these traits could explain why functional impulsives are more likely to report benefiting from their impulsivity than are dysfunctional impulsives. Enthusiastic, active individuals who are willing to take risks are likely to be very productive; in such individuals, the sheer quantity of their output could well compensate for the high number of errors in that output.

Dysfunctional impulsivity was more strongly associated with disorderliness (i.e., the low end of the Order scale) than was functional impulsivity. And dysfunctional impulsivity was more strongly associated with the tendency to ignore hard facts when making decisions (i.e., the low end of the Cognitive Structure scale). Traits like disorderliness and a lack of concern about hard facts are likely to exacerbate the problems

associated with acting without forethought, rather than compensating for those problems. This is consistent with the finding in the Study that the Dysfunctional Impulsivity factor correlated with a factor tapping a dislike of jobs requiring careful work and with a factor tapping a dislike of planning ahead, whereas the Functional Impulsivity factor did not correlate with either of these two factors; both of these characteristics are likely to have negative consequences for the individual.

Both functional and dysfunctional impulsivity showed significant, but small, correlations with the traits of boredom proneness and sociability. The two types of impulsivity did not differ in the strength of their correlations with these two traits.

It might be noted that these patterns of correlation provide some evidence concerning the relationship between the two types of impulsivity identified here and the five broad personality traits identified by Norman and others have investigated the relation between the scales of the PRF and measures of these five broad traits. The PRF scales that were found to be most closely associated with functional impulsivity in the present study were ones that Costa and McCrae found to be associated with the broad trait of extraversion. In contrast, the PRF scales found here to be most closely associated with dysfunctional impulsivity were ones that Costa and McCrae found to be associated with the broad trait of conscientiousness. This provides additional support for the importance of distinguishing between these two types of impulsivity.

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