

RELATIONSHIP BETWEEN COGNITIVE STYLE AND EMOTIONAL BEHAVIOR¹

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Summary.—In this research we examined the relationships among cognitive styles using the categorization of Bion and styles of modulation of emotional behavior (hostile content) explored with the Gottschalk, *et al.* method applied to the speech of 20 female and 10 male undergraduate students whose ages ranged from 20 to 35 years. Their verbalization was produced in a standard stimulus situation of 3 minutes duration. Analysis indicated a relationship between hostile attitude and cognitive styles. In particular, those who were relatively less hostile presented higher frequencies of processes classified by Bion as D2, which are characterized by an attitude of expectancy and waiting, with a tendency to defend internal psychological themes.

In this research we hypothesized relationships among cognitive styles and styles of modulation of emotional behavior. The difficulty in describing a cognitive style of a subject is related to the complexity of cognitive processes in which many components interact. Often psychological theories consider only a few components of this integrated activity. But in the psychoanalytic field, Bion (1963), pointing to the problem of communicating a psychoanalytic experience, elaborated a descriptive grid that is, we think, very useful in describing some relevant aspects of the cognitive processes, also derived from the psychoanalytic area (Table 1).

Bion (1963) considered two aspects of the intellectual activity. He held that cognitive processes can be placed along an axis which indicates their progressive differentiation from immature and confused forms of thoughts with fragments of representation to extremely differentiated forms such as concepts and mathematical abstractions. Oneiric thought would have an intermediate placement. On this axis, which represents the ordinate of the grid, an important point is represented by two steps called "preconception" and "conception." The term "preconception" refers to a form of thinking characterized by expectancy and waiting for possible future events that have for the subject particular personal meaning. The mental condition of "preconception" is followed, on the ordinate, by the step "conception" that is characterized by the realization of a concrete perceptual experience of the expected event. The next area on the ordinate is defined by Bion as "concept." While the term conception refers to a concrete perceptual experience, the term concept refers to abstract conceptualization and general theories.

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TABLE 1
THE BIONIAN GRID*

	1	2	3	4	5	6	... n
	Defining Hypothesis	Unsaturated Elements	Notation	Attention	Inquiry	Action	
A beta elements	A1	A2	A3	A4	A5	A6	
B alpha elements	B1	B2	B3	B4	B5	B6	<i>B_n</i>
C dream thought, dreams, myths	C1	C2	C3	C4	C5	C6	<i>C_n</i>
D preconception	D1	D2	D3	D4	D5	D6	<i>D_n</i>
E conception	E1	E2	E3	E4	E5	E6	<i>E_n</i>
F concept	F1	F2	F3	F4	F5	F6	<i>F_n</i>
G scientific deductive system		G2					
H algebraic calculus							

*Adapted from Bion (1963).

The last step on the ordinate refers to more abstract events like scientific deductive systems and finally (indicating) the top of the abstraction process to the algebraic calculus.

The other axis (the abscissa of the grid) refers to six categories indicating the different uses of the described forms of the ordinate. In fact, Bion held also that the process indicated on the ordinate within the subject can be communicated and that in this communication forms range also from the undifferentiated to the most differentiated. In other words, the subject can develop an oneiric process or a concept and express it during communication in a form that can be a "definitive hypothesis," "notation," "attention," or "inquiry." Interesting is the second column of the grid, unsaturated elements, called "pseudos" (this term used by Bion derives from Greek language and indicates "false," "spurious"). With this categorization Bion tries to describe a particular condition characterized as a defensive verbal attitude toward the mental event the subject is experiencing at that moment. Finally, the last column is characterized by the "action," i.e., the event is expressed by the subject in the form of action.

So the grid of Bion refers to some aspects of the form of a subject's cognitive process. We hypothesize that subjects habitually prefer to use some form of thinking that can be considered as expression of "cognitive style" of the subject. Now we investigated whether there is a relationship between "cognitive style" and style of modulation of affective behavior such as anxiety and hostility. Study of the last components was carried out using the Gottschalk, Winget, and Gleser method (1969) that analyzes the content of representation of hostile acts and events emerging on a free theme from the verbal record of interviewed subjects. The method distinguishes three forms of hostility: (a) directed outward both overt (from subject to others) and

covert (attributed to others), (b) directed inward, that is, from the subject to himself, and (c) ambivalent, or hostile attitudes from other people toward the self of the interviewed subject. Moreover, the Gottschalk, *et al.* method includes a measure of anxiety.

METHOD

The subjects were undergraduate students in psychology (20 women and 10 men) whose ages ranged from 20 to 35 years.

The study of the forms of cognitive activity was carried out using the Bionian grid and responses of verbal hostility and anxiety scored by Gottschalk, *et al.*'s method (1969). The subject, while sitting in a comfortable armchair, was asked to talk for 3 min. about some interesting or dramatic experience in his life. The speech was recorded and then analyzed using both the Bionian grid and the Gottschalk, *et al.* method.

The general concepts of the Bionian grid are presented in the introduction of this paper. The different forms of cognitive processes correspond to different cells (indicated by capital letters and numbers) produced on the grid by the cross of rows and columns. Each subject can express during three minutes of speech different forms of thinking with different frequencies for each form. We have calculated the frequencies of appearance of cognitive processes which correspond to the cells of the grid. The evaluation of cognitive activity was made by two psychologists trained in Bionian psychoanalytic theory and treatments. For a deeper knowledge of the Bionian methodology, see Bion (1963).

The Gottschalk, *et al.* content analysis defined the magnitude of aggressive and anxious processes by calculating the frequency of any relevant type of thematic verbal reference expressed during the three minutes of verbalization. Scores were obtained using the Gottschalk formula:

$$\sqrt{\frac{100(f_1w_1 + f_2w_2 \dots f_nw_n + 0.5)}{N \text{ (3 minutes)}}$$

where f_n is the frequency for unit of time (three minutes) of any relevant type of thematic verbal reference, w_n is the weight applied to such verbal statements, and N is the number of words per unit of time. For further information see Gottschalk, *et al.* (1969, p. 18).

RESULTS

In Table 2 are indicated the means and the standard deviations for the whole group of 30 subjects for the different forms of hostility and anxiety scored using the Gottschalk, *et al.* method.

The frequencies of appearance of the different forms of cognitive pro-

TABLE 2
MEANS, MEDIANS, AND STANDARD DEVIATIONS FOR FIVE KINDS OF HOSTILITY
AND ANXIETY SCORED BY GOTTSCHALK'S METHOD

	Outward Hostility	Overt Hostility	Covert Hostility	Inward Hostility	Ambivalent Hostility	Anxiety
<i>M</i>	1.28	1.04	.74	1.40	1.05	2.32
<i>Mdn</i>	1.16	.99	.50	1.51	.65	2.36
<i>SD</i>	.54	.48	.46	.68	.63	.93

cesses for the whole group of examined subjects corresponding to the cells of the grid (cross of rows and columns) are indicated in Table 3.

TABLE 3
FREQUENCY OF APPEARANCE OF DIFFERENT FORMS OF BIONIAN COGNITIVE PROCESSES

	1	2	3	4	5	6	... n
A	0	0				0	
B	0	0	0	0	0	0	
C	13	9	63	61	0	0	
D	2	28	29	45	3	0	
E	5	2	35	39	0	2	
F	0	0	0	0	0	0	
G	0	0					
H							

Further, we divided the group in two subgroups classifying subjects with high and low hostility levels, in each form of hostility categorized by the Gottschalk, *et al.* method. The division into two groups is made, for each category, on the basis of the median. See Table 4.

TABLE 4
FREQUENCY OF BIONIAN COGNITIVE PROCESS FOR 30 SUBJECTS
SHOWING LOW AND HIGH HOSTILITY

	<i>n</i>	Outward Hostility		Overt Hostility		Covert Hostility		Ambivalent Hostility	
		C2	D2	C2	D2	C2	D2	C2	D2
Less	15	9	23	8	23	7	22	9	18
More	15	0	5	1	6	4	6	0	10
<i>H</i>		2.80	5.57*	1.38	5.85*	.73	3.64*	2.80	0.95

* $p < 0.5$, by Kruskal-Wallis test.

DISCUSSION

We hypothesized that emotional and cognitive processes are related. In fact, subjects who produce less verbally hostile content than other subjects show also a tendency to produce, with respect to the other group, processes scored by Bion's grid as cell D2 defined as preconception and "pseudos."

The term preconception refers to thinking which indicates a state of expectation and waiting (Bion, 1963). The form D indicates the difficulty in passing from a condition of expectation and preparation to an overtly articulated, well-defined mental activity as, for example, by the presence of concepts, etc. Moreover, the form of preconception crosses in these subjects with column 2 (called "pseudos": see the introduction) that indicates a defensive verbal attitude toward a mental event the subject is experiencing at the moment.

So our data indicate that subjects who show in their verbalization lower outwardly directed hostility both overt (from the subject toward others) and covert (attributed to others) have a tendency to elaborate a mental activity which is the result of interaction of preconception and verbal defenses toward some particular psychological content. We can suppose that these subjects have difficulty in elaborating more articulated mental processes. We have hypothesized that they are inhibited in transforming mental activity of preparation into clear mental representation of an act. In this sense the hostile verbal output can be interpreted as a final step of an internal psychological elaboration that this group is not able to produce. In conclusion, we think that our results, which need further investigation, suggest interesting interactions among production of hostile verbal content, i.e., aggressive mental representation verbally expressed, and some cognitive form of intellectual activity that we consider an expression of the cognitive style of a subject.

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