

# ABSTRACT AND CONCRETE BEHAVIOR

## AN EXPERIMENTAL STUDY WITH SPECIAL TESTS

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### INTRODUCTION

#### DIFFERENTIATION AND DEFINITIONS OF THE CONCRETE AND ABSTRACT ATTITUDES

IN recent years the interest of American students in the impairment of integrative mental function as a phenomenon of psychopathology has been growing. This interest is demonstrated by the mounting list of publications reporting the experimental work carried out by different investigators in clinical psychology (68, 20, 21, 25, 9, 10, 41, 27). These studies on behavior changes in the brain-diseased, schizophrenic, ament and dement, focus on the question of impairment of "abstract behavior."

The problem was first discovered and experimentally attacked by Gelb and Goldstein (17), who, during and after the World War, introduced a number of methods for determining the capacity status of patients suffering from brain injuries. These authors and their collaborators devised special sorting tests, *e.g.*, color and object sorting tests for that purpose (18, 70, 35, 5, 61, 36, 63, 22). The analysis of the behavior and the performance changes in such patients led them to make a distinction between two modes of behavior—the abstract and the concrete. The normal person is capable of assuming both, whereas the abnormal individual is confined to but one type of behavior—the concrete. The abstract and concrete behaviors are dependent upon two corresponding attitudes which are psychologically so basic that one may speak of them almost as levels.

The abstract and the concrete attitudes are not acquired mental sets or habits of an individual, or special isolable aptitudes, such as memory, attention, etc. They are rather *capacity levels of the total personality*. Each one furnishes the basis for all performances pertaining to a specific plane of activity. In other words, each attitude constitutes one definite behavioral range which involves a number of performances and responses. These latter, when taken individually at their surface value, may appear to be discrete entities of quite a diversified nature.<sup>1</sup> Closer analysis reveals that

<sup>1</sup> *E.g.*, attention, recall, retention, recognition, synthesizing, symbolization, etc.

these seemingly diverse performances and responses have as a common basis *one* functional level of integration, one cross-sectional attitude of the personality: either the concrete or the abstract attitude. Each one is the functional precondition for the concerted operation of different processes; it accounts for their mutual interdependence.

In some ways, the use of the term "attitude" may disturb the psychologist who would prefer the more legitimate terminology of "*mental set*" or "*approach*" as being the more common designations. Both expressions, however, are either too "partitive" and "temporal" in meaning or bear certain behavioristic connotations; and the latter leave little room for an explanatory concept not adhering to the monopolizing claims of "past experience" or "acquired traits." The meaning the authors try to convey by the term *attitude* is rather unique in one respect. Our concept of attitude implies a *capacity level* of the total personality in a specific plane of activity.

This plane can be related to the outerworld situation or to an inner experience. One can assume either an abstract or a concrete attitude towards the outerworld as well as towards an inner experience. In assuming the one or the other, the individual as a whole gears himself toward a specific direction of activity which we call abstract or concrete behavior.<sup>2</sup>

For these reasons the departure from common usage may be justified. Yet there are some similarities to the objectives and theoretical approach of certain modern investigators which may be pointed out to the reader. He may relate our conception to the following discussions in contemporary psychology on the question of common functional factors: Karl S. Lashley's excellent paper on functional determinants of cerebral localization (47) and the various investigations of Spearman and Thurstone (67), signifying the search for "common factors" which underlie different partial activities, have some points in common with what we express by the term "attitude." The principal difference between the aforementioned and the approach presented here is that we forego any attempt at statistical methods at this phase of our work and knowledge. We believe it to be the preliminary task, especially of psychopathology, to ascertain data on a descriptive, qualitative level. The distinction between an abstract and concrete attitude in the characterized sense of two different behavioral ranges is of such a preliminary descriptive nature.

*The concrete attitude is realistic.* It does not imply conscious activity in the sense of reasoning, awareness or a self-account of one's doing. We surrender to experiences of an unreflective character: we are confined to the

<sup>2</sup> Gordon W. Allport defines attitude and trait as a form of readiness for response (1).

immediate apprehension of the given thing or situation in its particular uniqueness. This apprehension may be by sense or percept, but is never *mediated by discursive reasoning*. Our thinking and acting are directed by the immediate claims which one particular aspect of the object or of the outerworld situation makes.

The nature of these claims may be experienced in different forms: as sensory impressiveness; as sensory cohesion; as an expressive quality of physiognomies or of things (2, 62); as situational belongingness, be it a manipulative valence (48, 29), a situational familiarity, or a tangible means-end function.

We respond unreflectively to these claims, because they are thrust upon us as palpable configurations or palpable contexts in the experiential phenomenal realm (*e.g.*, the aspect of kindred color or of practical usage, etc.). Most of our common reactions are codetermined by these claims arising from the environing stimuli in our everyday life. Such a claim may constitute a bond between the responding individual and the object, etc. Because of the bondage, the individual cannot easily detach himself from the demand exerted by that experienced uniqueness of the object. Therefore it is difficult, if not impossible, for him to realize other potential functions of this same object, or even to conceive of it as an example, a representative, or a case of a general class or category. This dependence upon immediate claims can take on the characteristic of rigidity and "lack of shifting" well known in abnormal psychology. But it can also take on the characteristic of fluidity which manifests itself in an extreme susceptibility to the varying stimuli in the surroundings. The stimuli are followed as ever newly arising; the person is delivered to their momentary valences. This may appear to be distractibility or continual spontaneous shifting of attention whereas, in reality, the individual is being shunted passively from one stimulus to the next.

The concrete attitude exists also in respect to ideas, thoughts and feelings, even if these experiences are not directly dependent upon the immediate outerworld. With respect to these more subjective experiences, the attitude is also realistic. We surrender to the immediate claims and particular uniqueness of thoughts and feelings in the same way as to the outerworld claims.

*The abstract attitude embraces more than merely the "real" stimulus in its scope.* It implies conscious activity in the sense of reasoning, awareness and self-account of one's doing. We transcend the immediately given situation, the specific aspect or sense impression: we abstract common from particular properties; we are oriented in our action by a rather conceptual

viewpoint, be it a category, a class, or a general meaning under which the particular object before us falls. We detach ourselves from the given impression, and the individual thing represents to us an accidental example or representation of a category. The abstract attitude is the basis for the following *conscious* and *volitional* modes of behavior:

1. To detach our ego from the outerworld or from inner experiences.
2. To assume a mental set.
3. To account for acts to oneself; to verbalize the account.
4. To shift reflectively from one aspect of the situation to another.<sup>3</sup>
5. To hold in mind simultaneously various aspects.
6. To grasp the essential of a given whole; to break up a given whole into parts, to isolate and to synthesize them.
7. To abstract common properties reflectively; to form hierarchic concepts.
8. To plan ahead ideationally; to assume an attitude towards the "mere possible" and to think or perform symbolically.

Concrete behavior has not the above mentioned characteristics.

In order to illustrate the interrelation between the enumerated modes of behavior and the abstract attitude, we will briefly exemplify from case material of cerebral pathology in the following. Within the framework of our discussion, however, any attempt at a presentation of entire case histories and their clinical evaluation would lead too far astray. Therefore, we have to confine ourselves to pointing out certain symptomatic features in the performance of patients which show how the impairment of abstract attitude affects the characterized behavioral modes. With this purpose in mind, it seems rather irrelevant to labor the etiological question in each case, as long as the facts to be cited have been positively ascertained as sequelae to cerebral pathology.

1. *To detach our ego from the outerworld or from inner experiences.*

Patient F. is asked to take a comb from a table and bring it to the examiner. She cannot do this without combing her hair ("forced responsiveness"). A patient of Head (30) says, "With me it's all in bits, I have to jump like a man who jumps from one thing to the next; I can see them, but I can't express them." Patient Sch. is asked to repeat the sentence: "The snow is black." He states he could not say it, that it was not so. The examiner explained to him that such senseless phrases can be repeated even though they are not true, and then urged the patient to repeat the sentence. Now the patient repeated the requested sentence, but mumbled immediately afterwards: "No, the snow is white." The same patient could not be

<sup>3</sup> See to the problem of shift, p. 100.

induced to repeat the sentence "the sun is shining" on a rainy day. Patient Schor, with a paralysis of the right arm was unable to repeat the sentence "I can write well with my right hand." He replaced the word "right" by the word "left." Another patient was well able to use eating utensils while eating, whereas given these objects outside of the eating situation, he produced only a jumble of senseless movements with them. Another patient was unable to drink water out of a glass on command, unless he was really thirsty.

2. *To assume a mental set willfully and consciously.*

A patient is unable to set the hands of a clock to the demanded hour, but can recognize what time it is immediately if presented with the clock. Another patient, whom the examiner started off on a continuous task, e.g., counting or writing letters, is unable to proceed spontaneously if once interrupted; he is unable to initiate an action on his own, to assume a mental set willfully. A patient of Woerkom could give the *series* of the week days and months of the year correctly, but if the examiner named a *particular* day or month, the patient could not give the name of the one preceding or following.

3. *To account for acts to oneself or to others.*

A patient is well able to throw balls into three boxes which are located at different distances from him. He never misses. Asked which box is further and which is nearer, he is unable to give any account or to make a statement concerning his procedure in aiming. Another patient points correctly to the source of a noise, but cannot state the direction from which the noise originated. To do this requires an abstract grasp of spatial relation and the concomitant capacity to account for this understanding by verbalization.

4. *To shift reflectively from one aspect of the situation to another.*

A patient who has just succeeded in reciting the days of the week is now asked to recite the alphabet. He cannot shift to this task, and only after repeated promptings, or better stated, after the examiner has commenced to call out the alphabet, can the patient follow in his recitation. The same phenomenon occurs when the patient has accomplished the task of reciting the alphabet and is then asked to recite the days of the week or the number series. Another patient can call out the number series from one on, but if the examiner asks him to begin with a number other than one, the patient is at a loss, he must start with one. Such patients are often well able to keep up with a conversation initiated by the examiner, but when he sud-

denly shifts the topic to an entirely different context, they are at a loss to understand what he is saying. A patient may be able to read a word, but immediately thereafter cannot spell out the letters of the word and *vice versa*; he cannot shift from one procedure to the other. A patient of Head, after improvement, described his difficulty in performing the head, hand, ear, eye test in his own words thusly: "I look at you and then I say, he's got his hand on my left, therefore it is on the right; I have to translate it, to transfer it in my mind." The mental rigidity of patients of this kind can manifest itself in the following experiment: If confronted with the ambiguous figures of Rubin they will at best recognize one aspect, the face or the vase, but are unable to shift from one aspect to the other.

5. *To hold in mind simultaneously various aspects.*

A patient is instructed to press the lever in the reaction time apparatus set-up at the appearance of the red light. He does this correctly. If, however, instructed to respond to only one of two colored lights which are given in irregular succession (red, green), the patient responds by pressing the lever whenever any one of the lights appears. A patient is instructed to cross out the letter X in one of the concentration tests. She begins by following the instruction but after having carried out the task correctly through a few lines of the test, she continues to cross out every letter. A patient of Gruenberg and Boumann, confronted with the designs of triangles, squares and circles, whose lines partially overlap and cross, is able to point to a place which belongs to one figure at the time, but is completely at a loss to show a point in the design which belongs to both the triangle and the square or the triangle and the circle.

Investigations of such patients with the feature profile test have shown that patients may put in the parts correctly according to shape—as in the open square for the four parts of the ear—but they cannot, at the same time, attend to the lines drawn on these four parts which make up the design of the ear.

6. *To grasp the essential of a given whole; to break up a given whole into parts, to isolate and to synthesize them.*

If a patient is confronted with a picture which tells a story (The Terman-Binet Pictures or the Kuhlman, e.g., The Snowball or Blind Man's Buff), he is able only to enumerate individual items and does not grasp the point. He neither finds the essential relations between the persons acting in the picture, nor can he grasp the gist of the story. Evidently, the patient is unable to synthesize the individual events into a meaningful whole. A

patient of Head's (30, p. 113) complains: "I tried working out jigsaw puzzles but I was very bad at them. I could see the bits but I could not see any relation between them. I could not get the general idea."

Certain patients are able to read whole words correctly, but if the letters of the same word are presented separately with a space between each letter, they are then not able to recognize the word.

7. *To abstract common properties reflectively; to form hierarchic concepts.*

A patient can count numbers on his fingers and by various roundabout methods; in this fashion he can even obtain the results which look like subtraction and addition, but he is entirely unable to state whether 7 or 4 is more and has no concept of the value of numbers whatsoever. Patients of this type have no understanding of analogies or metaphors, since in both the abstractions of a common property is necessary. They fail on a simple syllogism or on tests of finding the common denominator of several items.

8. *To plan ahead ideationally.*

a. Patients can easily find their way in walking from the ward into a room or from the hospital to their home, but if asked to draw a map of their route or to give a verbal account of it, they cannot do it. Many patients of this type are unable to *start* drawing such a map, but can complete it if the experimenter gives them a starting point, *i.e.*, begins the design for them (Head). Similar to this is the way patients solve the Purse (Ball) and Field Test (Binet), they cannot make a plan of their search.

b. To assume an attitude towards the "mere possible" and to think or perform symbolically.

The patient can use the key to open the door correctly but is unable to demonstrate how to use the key without the door present. Another patient cannot demonstrate how to drink out of an empty glass whereas he can drink out of a full glass. He can knock at a door, but if pulled away from the door by the experimenter so that his arm does not reach the door, he cannot perform this action symbolically. He can write his name on paper, but not in the air. He can blow a piece of paper but cannot demonstrate how to blow without the paper.

The inability here discussed or, for instance, the patient's inability to continue hammering if the nail is removed, indicate that these patients are unable to assume an attitude toward the "mere possible" and are bound to concrete reality.—

We have to differentiate between various degrees of both the concrete and the abstract behavior. First, there are various degrees of abstract

behavior corresponding to the degree of ideational complexity which the performance in question involves. For instance, the highest degree of abstract behavior is required for the conscious and volitional act of forming generalized and hierarchic concepts or of thinking in terms of a principle and its subordinate cases and to verbalize these acts. Another instance of similar abstract behavior is the act of consciously and volitionally directing and controlling every phase of a performance—and of accounting for it verbally. A lower degree of abstraction obtains the anticipatory, ideational act of consciously and volitionally planning or initiating insightful behavior without a distinct awareness or self-accounting of every phase of its further course. As a special instance of the latter degree, the understanding of symbols or metaphoric thinking and intelligent behavior in everyday life may be considered. Here it is mostly the *directional* act which is abstract and the ensuing performance runs off on a concrete plane—until difficulties arise. Then the required shift again calls into play the abstract, anticipatory deliberation, and so on.

A gradation applies just as well to concrete behavior. The most concrete way of dealing with situations or things, is to react to one aspect of them exclusively; *i.e.*, reacting to *one* global impression or to one color alone, to a particular form of an object, or to one property of it, as, for example, its practical usage. A less concrete approach is indicated when the person is unreflectively embracing in his scope the total, palpable configuration of an object or situation, and is not determined in his response by any one impressive particularity of it. An unreflective variation of perspective toward the situation is less concrete than a rigid fixation to one aspect of it.

The normal individual combines both attitudes and is able to shift from one to the other at will according to the demands of the situation. Some tasks can be performed only by virtue of the abstract attitude. We are well aware of the fact that we as yet have barely scratched the surface of the problem involved in the interrelation between abstract and concrete attitude in the normal individual. Here only the very first attempts towards an understanding are being made and experimental research has yet to accomplish a highly complex task. At the present state of our knowledge the following points should be emphasized: (1) Although the normal person's behavior is prevalingly concrete, this concreteness can be considered normal only as long as it is embedded in and co-determined by the abstract attitude. For instance, in the normal person both attitudes are always present in a definite figure-ground relation. (2) Which of the two operates in the foreground depends upon the demands of the given situation. (3) In pathology



this relation becomes disorganized, if not disintegrated, into an abnormal condition. Owing to the impairment of the abstract attitude, the concrete plane of behavior has become deprived of the functional control by that "higher" level and acquires an abnormal predominance of an automatic nature which we may call forced responsiveness as to *form* and concreteness as to *content*.

Organic pathology in patients with brain disease disintegrates human behavior in such a way that the capacity for abstract behavior is impaired to a greater or lesser degree in the patient. Thus, he becomes more or less reduced to a level of concreteness of situational thinking and acting so that he can perform only those tasks which can be fulfilled in a concrete manner.

In order to avoid misunderstanding, we have to emphasize that the process of disintegration toward the concrete does not abolish the arousal of ideas and of thoughts as such. What the deterioration affects and modifies is the *way of manipulating and operating with ideas and thoughts*. Thoughts do, however, arise but can become effective only in a concrete way. Just as the patient cannot deal with outworld objects in an abstract manner, he has to deal with ideas simply as "things." With respect to the outworld we may say that concepts or categories, meanings other than situational or means-end relations are not within the patient's scope. This lack of abstract frame of reference holds also for the patient's inner experiences; it manifests itself in his inability to arouse and organize, to direct and hold in check ideas or feelings by conscious volition. He cannot detach his ego from his inner experiences; therefore he is rather a passive subject to instead of an active master of them (*e.g.*, obsession, compulsion, in functional disturbances—rigidity, etc.). In patients with cortical damage, voluntary arousal or recall of images, events, or sentences, etc., is impaired and only takes place if the patient is brought into the concrete situation to which that content belongs.

It should be mentioned that what we have described as conscious volition is a *descriptive* term rather than an explanatory concept. It is to signify the condition in which the organism can come to terms with the environment only by a special activity which is required by the situation. From observation in normal as well as in pathological cases, there can be no doubt that a condition corresponding either to conscious will, or to the loss of it, exists. We need not speculate beyond this descriptive observation as to what kind of psychological "force" this conscious volition might represent. It suffices that this sort of act belongs to the functioning of the *normal* personality on the level of abstract behavior; that its presence or absence coincides with

the presence or absence of the abstract attitude. If this mutual interdependence within the structure of the personality can be taken as a matter of fact, then it is explicable why any defect affecting the abstract behavior must lead to a definite change of the personality as a whole. Since the characteristic changes in patients with brain lesions can be regarded as an impairment of abstract behavior, a variety of symptoms can be ascribed to that *basic* defect which manifests itself in different performance fields.

Thus we are dealing with a basic personality change. From this unitary point of view many of the otherwise separately described disturbances can be made intelligible.

#### METHODS OF TESTING FOR ABSTRACT BEHAVIOR PREDOMINANTLY QUALITATIVE

The methods of testing to which we now turn, especially the Sorting Tests for determining the impairment of abstract behavior, have also proven fruitful in the study of mental deterioration of other kinds. For, investigations by Vigotsky (68), and later by Kasanin and Hanfmann (41), Bolles and Goldstein (9), have shown that this type of examination could be successfully applied to certain types of schizophrenics. Since the problem has become of such a general practical and theoretical significance, it seemed advisable to prepare a manual on the Sorting Tests used by us and to present them with all the implementations which the experience of over twenty years of clinical work has evolved. In addition we publish here for the first time a psychological analysis of Goldstein's cube test (with the use of Kohs designs) and of the stick test with directions for administering all tests.