V. THE EFFECT OF FRUSTRATION UPON COGNITIVE ABILITY

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I wish to discuss a problem which appears not infrequently in the psychological literature, but which is almost always considered as propaedeutic to other primary considerations. This is the problem of the effect of frustration upon mental efficiency. This is an important aspect of the general problem of the causation of fluctuations in the level of an individual's mental ability—a problem which has largely been overlooked in the great interest in the problem of differences among individuals in intelligence.

Reference to the effects of frustrations upon the cognitive abilities is sometimes made in discussions of the relation of learning and emotion, in considerations of the motivation of behavior, and in writings about attention, distractions, and annoyances. In all of these cases, however, emphasis is usually placed upon the effect of the frustration upon ability to overcome the difficulty from which the frustration arises. This is only loosely related to the problem raised here. It is asked, rather, what happens to ability when an individual gives up and turns to other activities? What is the effect of a frustrated need upon the intellectual level of behavior not directly related to the satisfaction of that need?

When considered in the context of the former problems, there is a clear tendency to consider frustrations of any severity as harmful to intellectual behavior. On the other hand, there is a current of thought where one finds it common to consider frustrations as favorable to creative behavior of a high order. We are all familiar with the saying that starvation is an aid to artistic creation. Particularly in considerations of individual development one finds the belief expressed that only by suffering privations and hindrances does an individual develop his creative abilities optimally.

Such opposed views as these may be due, on the one hand, to the fact that the terms frustration, thwarting, hindrance, etc., designate a category of experience which includes fundamentally different psy-

chological situations. On the other hand, it may be that frustrations of different intensities or qualitative characteristics have opposed effects.

It is necessary, therefore, to define exactly the sort of frustrating situation to be considered in the following discussion. By a frustrating situation will be meant any situation in which an obstacle—physical, social, or conceptual, personal or environmental—prevents the satisfaction of a desire. It should be emphasized that in this definition the situation is defined from the point of view of the experiencing individual. This serves to exclude problem situations in which the individual thinks he is progressing to a solution or anticipates such progress. It includes only those situations where the subject himself accepts the obstacle as impassable, the solution as impossible.

Such frustrating situations may be represented as follows:

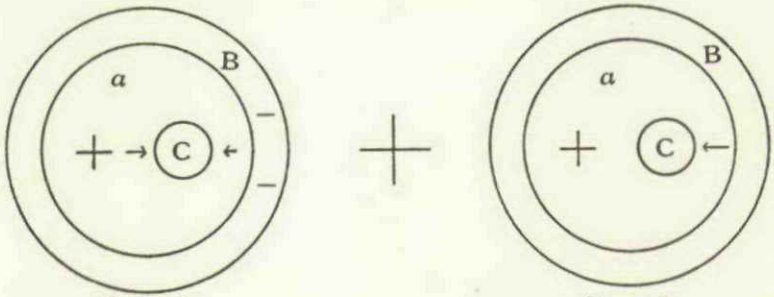

FIGURE 1
C = child
B = negative barrier
a = region of free activity.

FIGURE 2
C = child
B = neutral boundary
a = region of free activity.

The problem may be stated in terms of these diagrams thus: Do the cognitive abilities in region *a* of Figure 1 differ from such abilities in region *a* of Figure 2? An investigation by Barker, Dembo, and Lewin[1] bearing upon this problem, and reported to these meetings last year, revealed that differences do occur, that frustration leads in some cases to a lowering of the cognitive level and in some cases to an increase. In that experiment the behavior of children in a satisfying play situation was compared with their behavior in the identical physical situation, when its psychological significance had been changed to that of a frustrating situation. Thirty children, aged two to five years, were observed individually on two occasions: first, in a standardized playroom; second, when the room had been

[1] To be published soon in *University of Iowa Studies in Child Welfare.*

enlarged and play materials greatly surpassing in attractiveness those available on the first occasion had been added. The play objects of the first play period were incorporated into the new materials as parts of more attractive wholes. After the child was thoroughly interested in the new toys, the situation was changed to a frustrating situation: the new toys were made unobtainable, though remaining visible, by placing a barrier of wire netting where the wall of the original playroom had been. In the present paper it is proposed to discuss some processes which may be hypothesized to account for the differing effects of such frustration upon the cognitive level.

In constructing these hypotheses it has been assumed that as a first approximation the psychological organism can be considered to consist of two parts: an inner system of psychological needs, and an outer, surrounding system comprising the perceptual, cognitive, and motor functions. The perceptual-cognitive-motor systems mediate between the reality of the outer world and the needs of the organism. An important property of these systems, as of all good media, is their plastic nature; they readily assume any structure imposed upon them by the outer world, on the one hand, or by the inner needs of the individual, on the other, within the limits of their intrinsic natures. We have further assumed that the cognitive level of behavior depends in part upon the complexity and integration of the organization obtaining in the perceptual-cognitive-motor functions. This complexity of organization depends in part upon the degree of differentiation; i.e., upon the number of part systems into which the functions may be divided. An analogous condition exists with the physical organism, of course, where complexity of organization is limited by the number of cells; obviously a ten-celled mammal is an impossibility. The complexity of organization depends, also, upon the strength of the inducing forces operating to effect the organization. Anything which reduces the functional differentiation of the perceptual-cognitive-motor systems reduces the maximal level of cognitive functioning of which the organism is capable.

There appear to be two cases in which a reduction in the cognitive level of behavior occurs in frustration. In both of them frustration involves a conflict for control of the organization of the perceptual-cognitive-motor functions between the forces corresponding to the frustrated need, on the one hand, and the forces corresponding to needs which may be satisfied in reality, on the other.

In this situation there may result a division of the perceptual-cognitive-motor functions between two simultaneous actions; e.g., the individual may daydream or talk about his lost love while at the same time responding to the exigencies of the immediate reality. In such a case the number of parts of the perceptual-cognitive-motor functions participating in each activity is less than that maximally possible when no simultaneous division of these functions occurs; thus neither of the simultaneous activities can exhibit the maximal level of cognitive functioning of which the organism is capable.

On the other hand, the outcome of this conflict of needs for control of the perceptual-cognitive-motor functions may be complete dominance by the forces corresponding to one of the needs. The length of the period of dominance may be very short or it may be relatively permanent; in any case, while it lasts the competing interest receives no direct representation in the organization of the perceptual-cognitive-motor functions; it is completely repressed. In the experiments mentioned, this condition occurred not infrequently. In the most conspicuous cases there occurred a frequent shift from complete absorption in a neutral activity to complete preoccupation with the obstructed goal. In these cases the level of ability shown in the neutral action was distinctly lower than that which occurred when shifting between it and other neutral activities took place. In other words, actions which occur in a context of frustrated activities are on a lower creative level than similar actions occurring in a context of nonfrustrated activities.

In terms of the postulates stated above it is clear that anything which reduces the plasticity of the perceptual-cognitive-motor functions reduces the complexity of their organization obtaining for a given strength of force, and hence reduces the cognitive level of behavioral functioning. Under the conditions existing in frustration where there is a conflict between the forces corresponding to simultaneously aroused need systems for control of the perceptual-cognitive-motor functions, one would expect the plasticity of these systems to be decreased. They are no longer in a state of indifferent equilibrium ready to be formed by every force which operates, but will respond only to forces greater than those already acting. These functions are no longer plastic, but have a structure of their own which has to be destroyed before a new structure can be imposed. Under these conditions it is inevitable that the cognitive level of behavior should be lower in frustration.

Let us turn now to those cases where frustration leads to an increased level of cognitive functioning, and such cases are well

established experimentally. It seems possible to identify at least three quite different types of processes. One process may occur in the case of individuals who are lethargic generally or who happen to be disinterested in the particular neutral activity under consideration. Very frequently in these cases, the introduction of a frustration markedly raises the cognitive level of the neutral activity, although this is not always the case. It has already been suggested that a certain minimal strength of inducing force is necessary in order to establish the optimal complexity of organization which a given perceptual-cognitive-motor system permits. The terms *lethargy* and *disinterest* indicate just this: that the forces corresponding to the dominant needs are below optimal. They may be so weak that even with a maximally plastic medium, maximal organization and integration are not obtained. It may happen in these cases that the introduction of a frustration which raises the strength of the forces acting upon the perceptual-cognitive-motor systems above the minimal critical level will more than compensate, in terms of complexity of organization, for the loss of plasticity or division of the medium due to conflict. It is probable that this effect is limited to relatively mild frustrations.

The second type of reaction to frustration which frequently results in an increase in the cognitive level of a neutral action occurs when the neutral action becomes a substitute for the frustrated one. These are cases of sublimation. In these cases the tension systems corresponding to the frustrated and the neutral needs become identical, and their forces supplement rather than conflict with each other in organizing the perceptual-cognitive-motor functions. In these cases the complexity of organization of the neutral substitute action will usually be maximal and may result in an increased cognitive level of behavioral functioning.

A third type of reaction to frustration is closely related to this, but it is linked with the negative rather than the positive aspects of frustration. Behaviorally this reaction is characterized by an escape into reality, a losing of oneself in a neutral task. All frustrations have a negative component deriving partly from the pain of the barrier. If this component is dominant, there is a psychological locomotion away from the region of the frustration. In a way this respresents the obverse of true sublimation, for rather than dynamical identity with the frustrated need, a neutral action in order to be an adequate refuge from intolerable frustration must have dynamically complete independence of the frustrated need. It is undoubtedly difficult in practice to differentiate refuge from

sublimation, but theoretically, and practically too, there is a very important difference. In true sublimation the psychological organism is unified; there are no conflicting needs; in refuge the need corresponding to the frustrated goal presents a conflicting force in the organization of the perceptual-cognitive-motor systems, although frequently the forces of the negative component are so strong that a high degree of cognitive complexity and integration are obtained.

In conclusion, a few of the main points may be emphasized:

1. Intellectual ability varies with the psychological situation of the individual.

2. Frustration may result in a reduction or in an increase in the efficiency of the cognitive abilities in general. Which of these effects is obtained depends upon the nature of the needs and actions involved, the strength of the forces, and the properties of the particular perceptual-cognitive-motor systems. This constitutes more evidence that the psychological organism is a highly unitary system in some respects.

3. Processes have been proposed which account in a not unreasonable way, it is hoped, for the interrelation of these particular cognitive and motivational functions. It would appear that only by constructing and "proving" such hypotheses will the idea of the unity of the organism (so far as it is true) avoid the status of a slogan or an epithet and become a useful concept.

4. It is clear that the explanations proposed have a close relation to theories of intelligence which are based upon statistical studies of individual differences in intelligence. They point to the importance of strength of force, degree of differentiation, and plasticity as factors of importance in constructing a theory of intelligence. But entirely aside from the truth or falsity of the particular hypotheses proposed, they point to the importance of frustration as a technique for investigating the nature of the intellectual abilities. One is impressed with the extent to which we are dependent upon studies of individual differences for our knowledge in this field, and one might profitably raise the question whether by such approaches it is ever possible to return to the nature of mental organization obtaining in a particular concrete individual—which is, after all, our ultimate aim. In any case the study of differences in a particular individual's intelligence under differing conditions should supplement in important respects the individual differences approach, particularly since the former method has all the advantages of a thoroughly experimental technique.