EXPERIMENTAL ANALYSIS OF INDIVIDUAL DIFFERENCES AND PERSONALITY

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In psychological studies individual differences that result in variability in data and thus mask the effects under investigation have been reduced or eliminated in two ways: (1) through the use of large numbers of subjects and statistical manipulations, or (2) through extensive and controlled studies of individual subjects. The latter, behavior-analytic, method is scientifically better because it permits identification of the variables that result in individual differences. This paper advocates the direct study of individual differences and personality rather than indirect study through experimental control procedures. Some data are presented showing that individual differences in response patterns have orderly characteristics. Extension of the experimental analysis of behavior to the study of individual differences and personality is likely to be important both scientifically and for the future growth of behavior analysis.

Key words: personality, individual differences, human behavior, coronary-proneness

"In the study of nations and men we may observe the causes that render them hostile or friendly to each other, that tend to narrow or enlarge, to modify or exasperate the social character." So wrote Edward Gibbon in 1776 (p. 218). The point is made several times in the *Decline and Fall of the Roman Empire*, and it is remarkable in taking as self-evident that the causes of personal disposition to act—and to interact—in particular ways are to be found in the social environment of individuals. Having immersed himself in the study of the diverse customs and actions of the peoples contained in the Roman Empire, Gibbon noted many examples of the influence of environment in shaping individual character. He was not alone in noting that important relationship. By the end of the 18th century the nature-nurture issue had

been well debated, and even those who thought plausible the doctrine of innate ideas nevertheless saw in experience an important means of molding individual character. The question was not *whether*, but *how* the prevailing circumstances contributed to that process. The attempts at answering it arose, at that time, from anecdotal observation and reasoned reflection. Almost another century was to pass before experimental research was to be included in psychology.

By the time experimenting began in psychology, however, the main questions that attracted the interest of researchers were of a rather different kind. The psychological experimenters had become interested in measuring sensations, the ways in which sensations may be combined into perceptions, and the issues of what sorts of techniques, mostly involving "introspections," were suitable for the investigation of such phenomena (see Boring, 1950). Almost all such studies were concerned with discovering the "normal" working, in these respects, of a "normal" individual rather than the differences between the individuals studied as phenomena of interest in their own right.

In this context the term "normal" is the counterpart of the term that is generally agreed upon within sciences such as anatomy

This paper is dedicated to the memory of Don Hake, in appreciation of his personal friendship and scholarly integrity.

The data presented in Figure 2 are from a study conducted while the author was at the University of Wales. The data shown in Figures 3, 4, and 5 are presented by kind permission of Philip Hurst; they form part of a doctoral dissertation submitted by him to Auburn University. Correspondence and requests for reprints should be sent to Peter Harzem, Department of Psychology, Auburn University, Alabama 36849.

and physiology, and with reference to which various measurements, relative positions of organs, etc. are given. For instance, the statements that the human body contains 6 L of blood, or that there are 5,000,000 red blood cells per mL of blood, are with reference to a young adult who weighs 70 kg. It is unlikely that an individual has ever existed in whom all such measures of the "normal" occurred in precise combination. That fact has neither retarded the progress of those sciences nor prevented the making of diagnostic decisions concerning particular individuals who inevitably deviated from the established norms.

In this regard psychology has differed from the other biological disciplines. It has not been possible in psychology to establish a sufficiently broad range of standard measures of behavior that are generally recognized. A mere listing of such measures would have provided not, of course, the final content of the science but rather a basis with reference to which individual differences, their origins, persistence, and susceptibility to modification might have been experimentally analyzed. In other words, the functional analysis of the relations between behavior and environment would have had firmer reference points.

Of course the science of behavior is not, in the first place, concerned with describing the *specific* behavior of any one *particular* individual organism. From its beginning, the experimental analysis of behavior has taken as its main concern the behavior of the individual organism. For example, the policy statement of the *Journal of the Experimental Analysis of Behavior* indicates that it is primarily devoted to the "publication of experiments relevant to the behavior of individual organisms." By this, however, relevance to *all* organisms, or at least, in the context discussed above, all "normal" organisms of the same species, is intended.

The emphasis in behavior analysis upon the study of the individual organism provides a distinction from other approaches in psychology with regard to method. The others typically use large numbers of sub-

jects, "design" their research with reference to the techniques of statistical analysis to be used, seek correlations within large sets of data, and "produce smoothness [in the data] by averaging cases" (Skinner, 1956, p. 229). The purpose of producing "smoothness" is to "eliminate . . . the individual differences which obscure the difference under analysis" (Skinner, 1956, p. 229). This is a common purpose among all experimental sciences including behavior analysis. What distinguishes behavior analysis from other approaches in psychology is the method by which this smoothness is achieved and not whether such smoothness is sought. Devices such as merely increasing the group size are not acceptable because they obscure the variation in behavior without providing any evidence concerning the variables involved in that variation. Again, in Skinner's (1956) words, "our experience with practical control suggests that we may reduce the troublesome variability by changing the conditions of the experiment. By discovering, elaborating, and fully exploiting every relevant variable, we may eliminate *in advance of measurement* the individual differences" (p. 229, his italics).

There are two points implicit in the above considerations that so far appear not to have been noted. First, identifying and manipulating the relevant variables in order to reduce variability is the same as identifying the variables that go into the making of individual differences. In other words, the methods of behavior analysis that involve, as Skinner pointed out, "*discovering, elaborating, and fully exploiting*" (my italics) these variables are particularly suited to the analysis of individual differences. Second, that the individual differences are "eliminated" when basic relations are under investigation does not mean that these differences are, by nature, mere nuisances that lurk about in the data solely to render the discovery of orderly relations difficult. On the contrary, they are ever-present phenomena that require experimental analysis in their own right. Indeed, Skinner (1956), in the article from which the above quotations

were taken, alluded to the same point as follows:

Difficult problems of idiosyncrasy or individuality will always arise as products of biological and cultural processes, but it is the very business of the experimental analysis of behavior to devise techniques which reduce their effects *except when they are explicitly under investigation*. (p. 231, my italics)

Although the first part of this statement has been the highly successful, established practice in behavior analysis, the last part has gone mostly unattended, though with some notable exceptions (see Lundin, 1961, 1969). It is time, now, for the experimental analysis of behavior to turn to the study of individual differences as distinct behavioral phenomena.

SKINNER'S DICTUM

As discussed earlier, the main reason for reducing individual variability through extensive and rigorous control of the variables in an experiment is to prevent such variability from masking the effects of experimental manipulations upon the behavior under study. It is not a methodological necessity, to be lamented when it proves impossible, to eliminate this variability entirely; it is necessary only to reduce interference by it. Indeed, after decades of behavior analysis it is clear that individual differences in behavior cannot be entirely eliminated; they pervade all of the research literature to a greater or lesser extent. Moreover, they enter into subtle and complex interactions with the experimental variables so that it is sometimes unavoidable to include them explicitly in the analysis of the data rather than disregarding them as having been eliminated. To take one example, it is best to measure the change in response rate of an individual subject by relating it to the baseline rate of that individual rather than *either* waiting until all baseline rates become identical (an eventuality that may never come about) *or* still worse, taking some average measure as the baseline rate.

Consider, in another example, the interactions that arise from manipulating a variable only when, say, the postreinforcement pauses (1) reach a particular mean duration, in which case the number of sessions required to reach that point will individually differ and may differently interact with the experimental manipulation, or (2) after a previously specified number of daily sessions, in which case the postreinforcement-pause durations will individually differ and may differently interact with the experimental manipulation. The main point here is not that the sophisticated methodology of behavior analysis cannot deal with such confounding interactions; it can. Rather, it is to emphasize that individual differences are pervasive phenomena, whether wanted or not.

Skinner (1950) has pointed out that one of the disadvantages of having a hypothesis and conducting experiments in order to test it, lies in the unnecessary investment in searching for a particular set of results. Frazier, in *Walden Two* (Skinner, 1948), expressed this as follows: "I remember the rage I used to feel when a prediction went awry. I could have shouted at the subjects of my experiments, 'behave damn you, behave as you ought'." (p. 240). Frazier followed these remarks with a particularly significant dictum that should be part of the essential intellectual equipment of all scientists: "Eventually I realized that *the subjects were always right*. They behaved as they ought" (p. 240, my italics). Thus the subjects are right when they behave in ways different from each other.

PAST EXPERIENCE AND INDIVIDUAL DIFFERENCES IN HUMAN BEHAVIOR

Typically, in a behavior-analysis experiment, the prevailing conditions are rigorously controlled. When, under these conditions, different individuals respond differently, it is likely that variables are involved other than those prevailing in the experimental environment at the time. These variables are of two kinds: first, those that may

Fig. 1. Cumulative records of the key-press responses of three human adults, under identical experimental conditions. The records are from the entire single experimental session. (See text for details of the schedules.)

be said to be "biological" in the sense that they are either associated with the bodily condition of the organism such as height, weight, muscular agility, age, and the like, or arise from genetically determined disposition to act and react in particular ways; and second, those that have their origin in the past experiences of the organism. The available evidence seems to suggest that in organisms whose experiences prior to the experiment can be controlled as well as the experimental conditions, individual differences in behavior are likely to be related to *either* biological factors, *or* variability that may be a basic property of behavior in the same way as Brownian motion is of molecules, *or* a combination of these two. Often these dif-

ferences are small in comparison with those observed in human behavior. Although the methods of behavior analysis have been generally successful in reducing interference from individual differences in animal research, this has not always been the case when the same methods were used with human subjects. Often, individual differences have appeared to be the dominant feature of the data obtained in human experiments, resisting the "smoothing" effect of the powerful techniques of behavior analysis. These considerations have led the experimental analysis of behavior, concerned with the discovery of basic behavioral phenomena ("basic" in the sense of being common to all organisms regardless of individual

differences), to be conducted largely with animals. Human behavior is, however, particularly suitable for the experimental analysis of individual differences.

Figure 1 gives examples of the striking differences observed in the response patterns of human adults exposed to identical experimental conditions. In this experiment the subjects responded on a telegraph key, and each time the schedule requirement was met, a counter facing the subject incremented one point. A mixed (mix) schedule was programmed consisting of the following components: differential-reinforcement-of-low-rate (DRL) 20-s, fixed-ratio (FR) 40, DRL 40-s, and FR 30. The components remained in effect until 20, 5, and 7 reinforcements occurred, respectively; and the final schedule (FR 30) continued, if reached, until the end of the session. The session was terminated at the end of 30 min, although with some subjects it was extended well beyond that duration to see if any reinforcement would occur. At the start, the subjects were told: "Each time you gain a point it will be recorded on the counter in front of you. Pressing the key is associated with getting points. I would like you to see how many points you can get." All the cumulative records shown in Figure 1 were obtained in the single session of the experiment. The response pattern shown in the top record was unrelated to the programmed contingencies. The subject responded at a very high and steady rate, scoring no points; moreover, the response rate gradually increased through the session, which was extended well beyond the scheduled 30 min. The experimenter's behavior proved to be more susceptible to the circumstances than the subject's, however, and the session was eventually terminated without any indication of change in responding. The middle record is that of more variable responding, although here, too, there was no consistent evidence of behavioral control by the programmed contingencies. Two point-increments occurred in the session, apparently without effect on the behavior. The bottom record shows yet another different kind of

responding, indicating behavioral adjustment to the contingencies, with change each time the schedule changed.

Were it not for Skinner's dictum, it would not be difficult to sympathize with the behavior analyst who, faced with such data, might wish to turn to other species and more orderly behavior. However, although very different from each other, the cumulative records shown in Figure 1 are not merely haphazard, and they are not at all unusual. On the contrary, they are commonly encountered in many human experiments of the kind described above. The top two records show response patterns that were evidently maintained by variables other than those programmed by the experimenter. For that reason they will be labeled "nonadjusting" patterns of behavior, as distinct from the "adjusting" pattern seen in the bottom record. The nonadjusting behavior was, in turn, of two kinds: "constant responding" (top record) and "variable responding" (middle record) patterns. These "types" of responding will be seen again below.

RESPONSE PATTERNS AND PERFORMANCE IN A CONVENTIONAL SELECTION PROCEDURE

The study to be reported was an exploration into the possibility that the wide variations in the response patterns seen above might nevertheless reveal certain consistencies. The subjects were 54 British high school students in their graduating year, who had applied for admission to a highly selective undergraduate honors course in psychology at the University of Wales. Typically about 20% of the candidates were admitted. The applicants were invited to visit the Department of Psychology for a day, during which they were given various "paper-and-pencil" tests and were interviewed by faculty other than the writer. On the basis of the results of these procedures, each candidate was given one of three kinds of admission offers, relating the offer being made at that time to the scores to be received at the graduating examinations at the end of

that school year; or the candidate was rejected. In descending order of preference the decisions were: (1) Special offer, (2) Non-conditional offer, (3) Conditional offer, and (4) Reject.

The present experiment consisted of a 1-hr period added to the day's activities, during which the subjects were tested in the operant laboratory. They were informed at the outset that this segment was not a required part of the selection procedure and that the results would not be included in the decision. The subjects were instructed to respond on a telegraph key and to obtain as high a score on the counter facing them as they could. Each time a point occurred, two lights flashed on the panel facing the subject and a buzzer sounded. A five-link mixed schedule operated, consisting of the following sequence of components: fixed-interval (FI) 30-s (10 min), FR 40 (5 min), DRL 10-s (15 min), DRL 30-s (15 min), FR 20 (5 min).

Fig. 2. Cumulative records of the key-press responses of five subjects. A mixed schedule of reinforcement operated, the sequence of the components being indicated at the top of the figure. Each of the records was representative of the performance of a number of other subjects in the experiment. Top panel: "adjusting" behavior; middle panel: "nonadjusting," fast and slow, respectively; bottom panel: "nonadjusting," constant behavior.

Figure 2 shows representative cumulative records, for the entire session, from five subjects. The records of all of the subjects could, by inspection, be classified into one of the following three main groups. (1) *Adjustment* Group: Responding changed relative to the change in schedule, and some reinforcement occurred under each schedule. The record in the upper panel of Figure 2 is an example of that type of performance. (2) *Nonadjustment* (variable responding) Group: The response rate increased and decreased from time to time but there was no indication of a consistent relation between the schedule in operation and responding, and no consistent reinforcement. This group was further subdivided into those who responded at a slow rate and those who responded at a fast rate. One example of each is shown in the middle panel of Figure 2. (3) *Nonadjustment* (constant responding) Group: The subjects responded at a steady rate throughout the session, and performance appeared unrelated to schedule changes. This group, too, was subdivided into low- and high-rate responders, as represented by the two cumulative records shown, respectively, in the lower panel of Figure 2. With these subjects, when the already occurring response rate corresponded to the schedule that came into operation, point delivery occurred consistently; and when the schedule changed to one not matching the response "style," point delivery ceased. These blocks of what might have been considered "reinforcement" had no discernible effect on performance. The classification of the cumulative records into these groups was done independently by the author and a graduate student, with 100% agreement. Subsequently the records in Figure 2 were shown to a graduate student in the Department of Plant Biology who was asked to group the remaining cumulative records accordingly. Her classification, too, was in perfect agreement.

Table 1 shows the number of subjects in each of the groups described above, and the relations between key-pressing performance and the acceptance decision made on the basis of traditional tests by colleagues not

Table 1

The distribution of numbers of subjects according to the type of responding emitted, and the acceptance decision based on traditional tests and interviews.

<i>Offer</i>	<i>Type of Responding</i>				
	<i>Adjusting</i>	<i>Nonadjusting Variable</i>		<i>Nonadjusting Constant</i>	
		<i>Slow</i>	<i>Fast</i>	<i>Slow</i>	<i>Fast</i>
Special	3		1		6
Nonconditional	6	2	2	3	8
Conditional			3	5	1
Rejection	1	9	4		
Total	10	11	10	8	15

associated with this experiment. There were 10 subjects in the adjustment group, 9 of whom, according to the admission offer, were in the two preferred categories. The subjects in the variable-responding group did the worst, most being rejected; and among the nonadjusting groups, the selection performance of the fast responders was the best. In summary, the results were orderly. Those who did the best in the conventional selection procedures were, first, those whose responding adjusted to the contingencies in the experimental situation, and, second, those who did not adjust but responded at high and consistent rates.

It is best to avoid the temptations of post-hoc speculation about these data. Their significance, if any, is not in the ease with which they might fit conventionally held notions of "ability," "cleverness," "motivation," and the like. Nor was it intended in this experiment to seek to find ways of replacing traditional test procedures with a standard operant responding situation. That would have meant retaining an unsatisfactory practice but changing the tools used in it. Rather, the data presented here indicate that human behavior patterns that may be observed in basic, behavior-analytic experimental situations are more orderly than they may appear at first, and seem to relate in orderly ways to other behavior patterns of the same individual. This points to the remarkable prospect of developing a scientific enterprise of the experimental analysis of individual differences. It is not possible, nor perhaps desirable, at this very early stage to

predict what directions such an enterprise might take. The data suggest, however, that further explorations along these lines will be reinforced by the discovery of new regularities. In the face of this, it would be fitting for some behavior analysts (including the present writer) to emit some rule-governed behavior relative to yet another of Skinner's principles: "When you run onto something interesting, drop everything else and study it" (1956, p. 223). It is not even necessary to drop everything; perhaps, for the present, just *some* things until the available data grow to be strong enough to capture one's entire research activity.

PERSONALITY

The terms "individual differences" and "personality" have traditionally been given connotations in psychology, one referring to intellectual performance and the other to the characteristic ways in which a person behaves in daily life. It is best not to accept as given, however, classifications that have been established in other theoretical contexts. Until behavior-analytic data suggest new categories and new concepts in this area, a personality characteristic may be regarded as a particular cluster of individual differences—or, in explicit behavioral terms, as a cluster of functional relations between (1) a set of variables and (2) the already-established behavior patterns of an individual. The preceding discussion of the experimental analysis of individual differences equally applies, therefore, to the experimental anal-

ysis of personality. Although there have been a number of behavior-analytic investigations of phenomena related to the concept of personality (e.g., Ayllon & Azrin, 1965; Bijou & Baer, 1966; Brady, 1957; Lindsley, 1960; Sidman, 1960; see also Skinner, 1953a, 1953b), the dominant research method in the study of personality has consisted of administering personality inventories to large groups of individuals; through established procedures of the inventory, converting the answers to scores; and then seeking correlations among such scores. This sort of research has no direct—and little remote—contact with the actual behavior of persons. As a result, this field has become so impoverished that not only critics from outside the area but also many of those working in personality research have expressed strong dissatisfaction. As early as 1946, Albert Ellis, having reviewed the uses of personality inventories, was to conclude that they were “hardly worth the paper on which they are printed” (p. 425). Behavior analysts, who know well the power of contingencies in maintaining behavior, should not be surprised that such commentary has had no effect on the use of these inventories. What is needed is not merely to lament this state of affairs, but to provide better methods to replace them. Behavior analysis can provide those methods; their effectiveness in this area of research remains to be demonstrated.

Replacing the traditional questionnaires, etc. need not, however, involve in behavior analysis the total abandonment of the techniques of asking subjects questions. In fact, these techniques have their origins not in “personality theories” but in the work of Woodworth (1919), who developed a “personal data sheet,” and of J. B. Watson (1919), who developed a similar questionnaire. At that time these two sets of standard questions were the best known, and G. W. Allport (1921), the father of personality theory, was to write: “The completest [sic] lists of questions are Watson’s and Woodworth’s” (p. 452). As might be expected, these questions focused not on obtaining any

introspective reports but on descriptions of what the individual actually did in what circumstances (see Gynther & Green, 1982). In summary, the problem is not whether to ask questions but how to regard the answers obtained. This is not a difficult issue for behavior-analytic studies; the theory of verbal behavior (Skinner, 1957) provides the necessary direction in that respect: The subject’s verbal behavior has the same experimental status as other behavior. Thus the asking of questions becomes an experimental device by means of which verbal behavior is obtained, and the doctrinaire issue of whether to ask questions is rendered unnecessary.

With these considerations at hand, a conventional type of questionnaire was included in the following study. For some time now medical researchers and psychologists working in “behavioral medicine” have sought to develop ways of identifying individuals who are prone to coronary heart disease. Consensus has been that such persons are easily excitable, overly active, and somewhat hostile (e.g., Zyzanski, Jenkins, Ryan, Flessa, & Everist, 1976). Typically they are identified by means of a questionnaire and labeled Type A; Type B is the opposite sort of person—sedate, restful, and relaxed. The research has consisted of presenting Type A individuals with a demanding sort of task and then taking several measures of physiological arousal. Although there are substantial contradictions in the existing literature (e.g., Glass, 1977), it is generally believed the exaggerated cardiovascular responses of the Type A individual, through frequent occurrence, render heart attack more likely. Almost nothing is known, however, about the details of the behavior of such individuals, about whether this behavior is characterized by particular features, nor about interactions, if any, between it and cardiovascular measures.

The present experiment was conducted by Philip Hurst in 1984 in the writer’s laboratory. On the basis of extreme scores on the student version of the Jenkins Activity Survey (Krantz, Glass, & Snyder, 1974),

Fig. 3. Mean response rates on an FR 25 schedule of point delivery, of Type A (filled circles) and Type B (filled squares) subjects, in the adaptation phase of the experiment. Vertical lines indicate the ranges of the rates in the four daily sessions. The numbers are the subject numbers.

four Type A and three Type B male undergraduates were selected from a pool of 50 volunteers. The subjects attended daily experimental sessions in which they worked individually in a small cubicle, responding on a key under an FR 25 schedule of reinforcement. At each completion of the schedule requirement, a counter facing the subject increased one point and a light flashed. Daily sessions lasted 30 min and consisted of alternating 3-min rest periods and 6-min responding periods, beginning and ending with the rest periods. In each rest period the

subject's blood pressure was measured.

The first four were the baseline sessions. Figure 3 shows that contrary to what might be expected, all Type B subjects consistently responded at higher rates than Type A subjects. In subsequent phases of the experiment, the subjects were set a target point score to achieve. The score was increased across successive segments of a session as well as across sessions, or the score was held constant while the segment durations in which to achieve it were decreased, or both of these manipulations were carried out simultaneously. Figure 4 shows that when the target score was increased, the response rate of all subjects also increased, becoming approximately the same by the 10th session. That is, the increase in the Type A response rates was the greater. Figure 5 shows the changes in the blood pressure of each subject at the start of the session and following each segment, when the target score was held constant and the segment duration was decreased. These blood-pressure changes are representative of the data obtained under the other experimental manipulations. Although most subjects' systolic pressure increased within sessions across successive segments, there was no systematic difference between the blood-pressure changes of sub-

Fig. 4. The range (vertical lines) of response rates of Type A (filled circles) and Type B (filled squares) subjects in successive segments of two sessions in which the target score was increased. (Circles indicate the mean.) The numbers at the top of the graph are the session numbers.

Fig. 5. Systolic and diastolic blood pressure of Type A (filled circles) and Type B (filled squares) subjects. The mean (data points) and the range (vertical lines) are given for the 6 sessions in which the target score was held constant but the time available to achieve that score was decreased across the three 6-min periods of responding. Blood pressure was measured at the start and end of each session, and in 3-min "rest" periods between the periods of responding. The numbers are the subject numbers.

jects previously identified as Type A and Type B. The common interpretation of those type labels assumes that systematic differences between types would be substantiated by such measures of blood-pressure change. It seems persuasive, in the light of data such as these, that there is much to be investigated about phenomena of these kinds. The findings in the existing literature—that are, in any case, often conflicting (see Glass, 1977)—cannot be taken as given. This is not to say, however, that the phenomena, too, should be disregarded; on the contrary, analysis in areas such as this is likely to reveal regularities and functional relations that remain, so far, unknown.

These findings, as well as the other data presented in this paper, do not conclude an issue but open the possibilities that lie ahead for experimental analyses of personality and individual differences.

CONCLUSION

In *The New Machiavelli*, one of H. G. Wells' characters muses:

I find it very difficult to trace how form was added to form and interpretation followed interpretation in my ever-spreading, ever-deepening, ever-multiplying and enriching vision of this world into which I had been born. Every day added its impression, its hints, its subtle explications to the growing understanding. Day after day the living interlacing threads of a mind weave together. Every morning now for three weeks and more I have been trying to convey some idea of the factors and early influences by which my particular scrap of subjective tapestry was shaped, to show the child playing on the nursery floor, the son perplexed by his mother, gazing aghast at his dead father, explor-

ing interminable suburbs, touched by first intimations of the sexual mystery, coming in with a sort of confused avidity towards the centres of the life of London. (1911, p. 75)

What this fictional character sought to do through personal reflection, behavior analysis can do scientifically. The point is not, of course, that science should replace literature (that would be a crude absurdity), or that the science of behavior should seek to uncover the details of past experiences of individuals (that is a task best left to literary reflection). Behavior analysis can systematically face, however, questions of the following kind: What types of experience have lasting—or transient—effects on the behavior of an individual? What determines the longevity of such effects? In what ways do prior exposure to contingencies interact? How do such interactions determine the current behavior patterns of an individual? Are there times in the life of an individual when contingencies are most likely to leave lasting effects? Can long-established patterns and “styles” of responding be changed? If so, how?

None of these questions—nor many more that can be raised—is novel. Some of them have been investigated from time to time. What is now needed is a systematic and broad approach. The phenomena are interesting, and they are important if behavior analysis is to live up to its promise of affecting the design of cultures. What is more, the future of behavior analysis may well lie in its entry into fields such as the one advocated here.

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