

CHAPTER

5

THE EXPERIMENTS

Lewin's "major revolution in psychological research" consisted of a series of nearly twenty empirical studies done by his students, mostly as doctoral dissertations. They were theory-oriented and dealt with personality structure and the psychological environment. All were published as articles in the *Psychologische Forschung*, the journal of experimental psychology launched at the University of Berlin.

Lewin did not generally employ the apparatus that other psychologists were so fond of using in their experiments. Although he loved to tinker with complicated equipment and was considered one of the best laboratory technicians at the Institute, Lewin himself used a minimum of apparatus. For most of the *Forschung* experiments conducted by his students, pencil, paper, and a simple game or task were enough.

Lewin never told his students, that he had a system of this or that sort, Tamara Dembo reports. "Rather he would say, 'These are only the beginning concepts; we will have to find out more about them. We cannot do this yet; this is possible to do,' and so on. What he tried to do was conceptualize phenomena and connect them with other facts. He never produced a theory and then looked for facts to fit it. However, if you asked him, 'How can one do this topologically?' he would reply, 'What's the problem? Let's first look at the problem and see whether any of this is possible.' Those were the terms he thought in."

Lewin's fresh insights as a psychologist also stemmed from having

The Experiments

the skills and competence of a clinician. MacKinnon feels that Lewin possessed "more critical insights, more depth psychologically than most psychoanalysts. You couldn't discuss any psychological problem with him without his immediately seeing it in some fresh perspective and putting it in a new light, which always included putting it down on paper, drawing circles, Jordan curves, vectors, and whatnots representing the life space of the individual. Putting it down on paper this way, topologically, was now one of Lewin's hallmarks. He recognized that psychology would extend to all sorts of human relations insofar as they could be dealt with experimentally. He believed that this would require the kind of language that could signify all manner of problems which earlier would have been deemed quite impossible to express. He was confident that it was not necessary to re-create the same intensities in the laboratory that obtain outside it, but what *was* necessary was to set up the same dynamic system. What he worked out, in following these insights, furthered the development of experimental psychodynamics."

Lewin hoped by means of these empirical studies to account for behavior as a function of the total psychological field. What he planned to do was to set up experiments in fields that had been believed psychologically unapproachable—experiments to investigate the meaning of success and failure, of reality and unreality, of the motivation of anger. These had, of course, to include studies of environment, its topology and dynamics, and its relation to psychological satiation, the levels of aspiration, substitution, and conflict. The conceptual tools were available, he believed, to measure the direction and strength of psychological forces.

It was Lewin's earliest pupils—Zeigarnik, Ovsiankina, Mahler, Dembo, and a handful of others—who in their pioneer studies charted what had been the no man's land of psychology. The series of studies, rated as among the most distinguished group of empirical inquiries in the history of psychology, can be grouped under the headings of (1) Recall of Unfinished Tasks, (2) Level of Aspiration, (3) Substitution, (4) Satiation, (5) Anger. In terms of Lewin's postulates they can be treated as coming under one heading and shaping into one design.

The Experiments—Theory and Purpose

The first published experiment¹—and one of the most influential, in that a number of the subsequent studies were variations of the initial experiment—was done by Bluma Zeigarnik. A classic among Gestalt experiments, it was described by Lewin as “an attempt to break a first path through a forest of facts and assumptions using concepts that were still untested.” The basis of Zeigarnik’s study was an effort to test Lewin’s theory that the desire or intention to carry out a specific task corresponds to the building of a system of psychological “tension” and that the need to release this tension serves to sustain goal-directed activity until the intended task is carried out. Dynamically, Lewin theorized, this means that the system created by the unfulfilled goal continues to make its influence felt in thought or action (or both) as long as the tension is not yet discharged by completion of the activity. Zeigarnik sought to discover whether the “quasi-need” (the impulse to release the tension) functions only to accomplish the intention or whether it influences other aspects of behavior, such as memory. She designed her study so that the expression of an intention would be found in the desire to finish interrupted tasks and the effect of the quasi-need would be seen in the tendency to remember unfinished activities more readily than completed ones.

Zeigarnik’s findings offered the first laboratory confirmation of Lewin’s theory of systems in tension, and particularly the idea that the decisive factor in the release of this tension is the reaching of a goal. The phenomenon revealed in this experiment—the preferential recall of uncompleted tasks—has become part of the language of psychology and is known as the “Zeigarnik effect.” It is relevant not only to Lewin’s assumptions about systems in tension but also to the Freudian thesis that wishes persist until they are satisfied and that slips of the tongue, dreams, and similar behavior are manifestations of the system in tension seeking discharge.

¹ A more complete summary of the procedures and results of the Berlin experiments will be found in Appendix B, pages 244 ff.

Bluma Zeigarnik carried out her experiment from 1924 to 1926. Her findings were published in the *Psychologische Forschung* in 1927. Several years later she returned to Moscow with her husband. She has continued teaching and doing research as a member of the faculty of the University of Moscow. (In 1966, at the International Congress of Psychology in Moscow, Bluma Zeigarnik held a reunion with Tamara Dembo and Maria Ovsiankina, her fellow students under Lewin four decades earlier.)

Following closely on Zeigarnik's work on the anatomy of goal tensions were the experiments of Maria Ovsiankina, another of Lewin's young woman students from Russia. Where Zeigarnik tested the recall of interrupted tasks, Ovsiankina sought to measure the spontaneous resumption of tasks after they had been interrupted. Her findings that interrupted tasks were almost always resumed offered further confirmation of Lewin's postulate that there is a direct correlation between the release of a tension and the satisfaction of a need.

Still another implication of the tension-system theory was explored by Vera Mahler. She sought to determine whether substitute actions might release the tensions arising from the interruption of assigned tasks, and if so, what the relative effectiveness was of various kinds of substitute actions, such as talking or thinking about the activity. The phenomenon of substitution (or "sublimation") had been used extensively by Freud to explain behavior. Under Lewin's direction, Mahler began to investigate the dynamics of such substitution. How did substitute actions originate? What did substitute satisfaction mean? Which substitute activities led to satisfaction, and under what conditions? Fräulein Mahler's conclusions on the substitute value of any particular action in terms of its relation to the inner goal of the original activity served to refine further Lewin's idea of tension systems and goal achievement.

Along the lines of Mahler's study of substitute value, Sarah Sliosberg gave herself the task of investigating the relationship between reality and need satisfaction in the life of a child. In an experiment on the dynamics of play, Fräulein Sliosberg asked the question: Does a child accept as a substitute an object which is functionally

different from the original but which is suitable to represent it in play? Her conclusions shed new light on the differing psychological responses of younger versus older children and of the different effects of real-life versus play situations.

Yet another variation in the study of tension systems was worked out by Gita Birenbaum, who sought to identify the factors that determined whether an intention, once formed, is either carried out or forgotten. Birenbaum anticipated some of these influences, among them the nature and emotional tone of the person forming the intention, the nature of the intention itself, and the connection between the intention and other intentions in the subject's life. What she sought to measure was the strength of these influences in terms of the individual's overall psychic activity.

Lewin's theory of the role of goal achievements in the release of tensions raised a series of questions about goal setting. What are some of the factors that go into the decision to attempt a difficult goal or try for an easier success at a lower level? What are the reactions to success or failure in reaching the goal decided upon? The first experiments in this area were done by Ferdinand Hoppe and published in the *Psychologische Forschung* in 1930. Hoppe's subject was "level of aspiration," a phrase originally coined by Tamar Dembo to mean "the degree of difficulty of the goal toward which a person is striving." (Thus, the more difficult the goal, the higher the level of aspiration.) Hoppe aimed to investigate the factors which influence goal-setting behavior by measuring the effect of success or failure on the individual's decision to raise or lower his aspiration level.

Hoppe's pioneering work had major practical as well as experimental significance. Before this study little had been known about the everyday problems a person faces when trying to decide which goals to seek. More than any of the other areas explored by Lewin's students, Hoppe's experiment touched off a veritable chain reaction of additional studies.

One of the first was by another of Lewin's Berlin students, Sara Jucknat, who sought confirmation of Hoppe's findings with a larger group of subjects. (Hoppe had worked with only 10 subjects;

The Experiments

Jucknat studied 650 children and 52 adults.) Her conclusions bore out Hoppe's findings on the factors that influence the choice of a difficult or easy goal, with the further refinement that the *kind* of success experienced also affected the aspiration level.

The work of Lewin's students in the uncharted area of level of aspiration was an early indication of the implications of Lewinian theory for social phenomena. Morton Deutsch has pointed out that the factors that determine level of aspiration provide new insight into the reasons for social apathy in the face of pressing political and international problems. "People are not likely to attempt to seek even highly valued objectives when they see no way of attaining them," Deutsch has written. Similarly, he adds, level of aspiration "sheds some light upon why social revolutions tend to occur only after there has been a slight improvement in the situation of the oppressed groups; the improvement raises their level of aspiration, making goals which were once viewed as unattainable now perceived as realistic possibilities."

Another major area of pioneering psychological research launched by Lewin's students at Berlin was that of emotion. Tamara Dembo chose anger for her experiment. She began her *Forschung* article by pointing out that the emotions—although one of the most vital of all areas of human concern—had been relatively unexplored, whereas perception had been exhaustively studied since the turn of the century. Even Freudian theory—the most important movement toward the psychology of affect with non-experimental methods—was still dominated by the principles and practices of association psychology.

Dembo devoted special attention to the genesis of anger and to why it was that frustrations in achieving one's aim or purpose caused anger in some instances but not in others. Her point of departure was Lewin's postulate that behavior is determined by the structure and state of the person in his life space and by the psychological environment at that particular moment. In a series of experiments remarkable in their originality (and their ability to provoke her subjects' anger), Dembo showed that the emotional effect of a felt need depended on the intensity (as opposed to the importance)

of that need. Thus, a person engaged in a triviality could react violently to frustration because—in this field and at this moment—trivial objects had received special significance. She demonstrated that a barrier which frustrated a person's attempt to reach a goal led to anger only if the person was surrounded by an outer barrier that prevented him from leaving the field.

Another of Lewin's students, Anitra Karsten, studied still another emotional phenomenon: satiation. In an ingenious experiment, Karsten showed how repetitions of the same activity can cause the subject to reach the point of refusing to continue (psychic satiation) irrespective of fatigue or other physical factors. Karsten linked these findings to a lowering of the tension level after numerous repetitions, thus explaining why mere repetition, if carried on long enough, can have a harmful effect on learning. Practice, Karsten's study implied, does not necessarily make perfect.

A variation on Karsten's satiation study was undertaken by Alex Freund, who sought to measure the effect of menstruation on the speed of satiation. Freund's study, which found that during menstruation psychological satiation occurred 26 to 30 per cent faster than at other times, further confirmed Lewin's view that, in general, the speed with which any activity is satiated increases with the degree to which the activity is psychologically central. (During menstruation, Freund postulated, all activities tend to be central.) This theory would also provide the reason why satiation occurs sooner in younger children than in older ones. "Children are likely to be involved in activity with their whole person," said Lewin, "and the velocity of satiation is therefore much greater."

For several more years new studies came in succession, each seeking additional evidence of the theory of a system in tension. Sara Fajans examined the effect of the distance between a child and an attractive object (such as a rattle or a doll) and the strength of the attraction in determining the direction of the child's behavior in reaching the toy. Fajans recognized that the *strength* of a valence might depend on a number of things—the kind and quality of a particular object, the state of the individual's need (is he hungry? satiated? oversatiated?), the presence of other objects with a posi-

The Experiments

tive or negative valence, and the direction of the object in question from the person. But her study revealed that the distance from an attractive object was so important as to determine a change in the children's behavior.

Lewin was content to let his students who were preparing for the doctorate follow their own bent in the design and conduct of their experiments. They could range over all the aspects of psychic behavior rather than being limited to the traditional laboratory subjects of perception and memory. Lewin believed that the real significance of an experimental finding lay in the contribution it made toward defining a general principle of universal application. In determining the general validity of a law, he wrote in 1931, "reference to the totality of the whole concrete situation must replace our reference to the greatest possible historical collection of frequent repetitions."