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Leon Festinger

(1919-1989)

City College of New York (1935-1939)

The University of Iowa (1939-1943)

The University of Rochester (1943-1945

Massachusetts Institute of Technology (1945-1948)

- The Proximity Effect
- Informal Social Communication

The University of Michigan (1948-1951)

The University of Minnesota (1951-1955)

- Social Comparison Processes

Stanford University (1955-1968)

- A Theory of Cognitive Dissonance
- When Prophesy Fails
- Insufficient Justification
- Blaming the Victim
- Conflict, Decision, and Dissonance

New School for Social Research (1968-1989)

- The Visual System and Perception
- The Human Legacy

Introduction

Leon Festinger was born in Brooklyn, New York, on May 8, 1919 to Russian-Jewish immigrants Alex Festinger and Sara Solomon Festinger. His father, an embroidery manufacturer, had left Russia an atheist and a radical and remained faithful to these convictions throughout his life. In his youth, Leon Festinger attended Boys' High School in Brooklyn. A number of authors have penned comprehensive biographies of his early life. Among the best are those written by his colleagues Jack Brehm (1998) and George A. Milite (2001).

Brehm, J. W. (1998.) Leon Festinger: Beyond the obvious. In *Portraits of pioneers in psychology, Volume III.* In M. Wertheimer and G. A. Kimble (eds.). Lawrence Erlbaum.

This chapter details the life's work of Leon Festinger, with a particular focus on cognitive dissonance theory. It follows Festinger's development one of the best theorists the field of social psychology has ever had the pleasure to call its own. Brehm describes the emergence of cognitive dissonance theory as "a breath of fresh air," and goes on to describe its many tenets and applications. In addition to describing the essential principles of this theory, the author goes on to describe research on post-decision dissonance, forced compliance, and persuasive arguments.

Milite, G. A. (2001). Festinger, Leon (1919-1989). *Gale encyclopedia of psychology* (2nd ed, pp. 247-248). Gale Group. Retrieved July 23, 2008.

The author presents a very brief biography on Festinger. He starts by briefly presenting a few details about Festinger's childhood, education, and his development of Cognitive Dissonance Theory while at Stanford. He then goes on to detail Festinger's famous dissonance study in which

participants were given either a small or large sum of money and were asked to lie about how interesting a particular task was. Finally, the author mentions Festinger's time at the New School in New York and closes by presenting a few details about his death in 1989.

City College of New York

(1935-1939)

In 1939, in the midst of the Great Depression, Festinger enrolled in the City College of New York (CCNY). He would be a scientist, he knew, but what kind? He already possessed the wide range of interests that were to mark his career. He toyed with majoring in physics and chemistry, and bored, finally switched to psychology at the last minute. When he came upon the psychologist Kurt Lewin's work—Lewin proposed and tested theoretical constructs with ingenious field research and experiments—he was hooked. He began conducting research on the ways in which people set goals for themselves (Hertzman & Festinger, 1940). Festinger received his B.S. in Psychology in 1939, with an honors thesis on suggestibility.

Festinger, L. (1939). Experiments in suggestibility. Honors thesis. City College of New York. (Leon Festinger's papers. Bentley Historical Library. University of Michigan).

One of Festinger's inspirations at CCNY was Clark Hull's *Hypnosis and Suggestibility*, which he discovered while browsing through scientific books in the CCNY library. Festinger described this work as a "beautiful series of studies in which he [Hull] took what is still an obscure

phenomenon and examined it." In his honor's thesis, Festinger conducted two experiments investigating the link between prestige and suggestibility, looking at subjects' suggestibility as a function of their tendency toward stabilizing decision estimates.

Hertzman, M., & Festinger, L. (1940). Shifts in explicit goals in a level of aspiration experiment. *Journal of Experimental Psychology, 27*, 439–452.

In an initial testing session, college men took a series of tests: a series of synonyms tests and information tests. After several trials, they were asked to indicate their aspirations, given the level of their performance. Not surprisingly, the majority hoped to improve their performance. Then, they were given bogus information as to the aspirations and performance of a fictitious group of fellow students, who had presumably performed at a level equal to their own. These men's goals were said to be more modest than the subjects' own. As a result, when asked a second time about their aspirations, men reduced their aspirations to more modest levels. Conclusion: Our desires are shaped by social realities.

To escape Nazi persecution, a number of eminent European social psychologists had fled to America and other Allied countries. These luminaries included Theodor Adorno, Fritz Heider, Kurt Lewin, and Henri Tajfel. Dedicated to defeating the Nazis, they threw themselves into working with groups such as the Office of Strategic Services (the OSS and a forerunner of the CIA), applying social psychological principles in order to aid the American war effort and undermine Axis morale. These immigrants insisted that scholars did not have to make a choice between pure science and applied science. Lewin's off-repeated maxims: "There is nothing so practical as a good theory" and "No research without action,

and no action without research," became watchwords for the émigré social psychologists. Festinger was caught by the passion and ingenuity of these European psychologists' work. Thus, after graduation from CCNY, he decided to move to the University of Iowa, where Kurt Lewin held court.

The University of Iowa

(1939-1943)

Lewin possessed three skills critical for any researcher: an ability to distinguish an important topic from a trivial one, a conviction that armchair theories must be tested against reality, and a dedication to translating ideas into solid research. Also required is the courage to withstand the buffetings of Fate as well as hostile colleagues and irate citizens. Festinger, too, possessed all these skills in spades. What especially impressed him was Lewin's level-of-aspiration theory. (Level-of-Aspiration theory posits that successful children tend to set their aspirations at a level just slightly above their ability. Less successful children tend to set goals that are either far above or far below their actual abilities.) (This theory is summarized in Lewin, et al., 1944. Festinger's MA thesis and early Iowa research on this topic can be found in Festinger, 1942a and b.)

Festinger, L. (1942a). A theoretical interpretation of shifts in level of aspiration. *Psychological Review, 49*, 235–250.

Subjects whose level of aspiration had been assessed (by calculating the difference between their performance and their estimates of future performance), were assigned to one of three conditions: (1) reality-unreality (i.e., they were asked to indicate the score they "expected" or the score they would "like,") (2) comparison (i.e., they were compared to a high-school, college, or graduate group), and (3) position (they were told that they were scoring above or below the group average). The results were examined to determine the extent to which shifts in the aspiration level were related to the strength and direction of the driving forces, the restraining forces, and the potency of the various frames of reference. Using these techniques, the author argues that it is possible to provide an operational definition of the potency of a frame of reference.

Festinger, L. (1942b). Wish, expectation, and group standards as factors influencing level of aspiration. *Journal of Abnormal and Social Psychology, 37*, 184–200. (Originally written as master's thesis, State University of Iowa, 1940.)

The author posed two questions: first, how will one's level of aspiration be affected if an individual knows that he is scoring above or below others? and, secondly, will the status of these other individuals be important in influencing his level of aspiration? To answer these questions, two experiments were conducted. In Experiment 1, Iowa students were given synonym and information tests, told their scores, and asked: "What do you think you will get the next time? In Experiment 2, they were asked: "What would you like to get next time? After additional trials they were given bogus information about their performance: they were told that they had scored higher (or lower) than others (high school students, college undergraduates, or graduate students) and asked predict their future score yet again. When asked what they expected to do, students were "realistic"—they tended to raise their expectations when told they had done better than others and to lower them when told they had done worse. When asked what score they "would like" to achieve, however, they responded in a wishful manner—regardless of the status of their competitors.

Lewin, K., Dembo, T., Festinger, L., & Sears, P. S. (1944). Level of aspiration. In J. McV. Hunt (Ed.), *Personality and the behavior disorders: Vol. 1. A handbook based on experimental and clinical research* (pp. 333-378). New York: Ronald Press.

The authors point out that any set of psychological problems, especially those in the fields of motivation and personality, inevitably involve goals and goal-directed behavior. This article reviews past research on people's level of aspiration. What determines aspirations, individual differences in aspirations, and how aspirations develop? The authors speculate about where future research is headed, and suggest some implications for personality and the behavior disorders.

At first, Festinger found Iowa bitterly disappointing. Lewin had moved on to new topics of interest and was no longer interested in the Zeigarnik effect (the fact that people recall unfinished and interrupted tasks better than completed ones) or in level-of-aspiration problems. Now his interests had shifted to social and applied psychology. Festinger (1980a) observed:

> When I came to Iowa, I was not interested in social psychology. Indeed, I had never had a course in social psychology. My graduate education did nothing to cure that. I never had a course at Iowa in social psychology, either. . . . Unfortunately for me, by the time I arrived, the things that fascinated me were no longer center stage . . . Undeterred, and enjoying the tolerance of others, I did research on level of aspiration, on a mathematical model of decision making, on statistics, and even strayed to doing a study using laboratory rats. The looser methodology of the social psychology studies, and the vagueness of the relation of the data to the Lewinian concepts, and theories, all seemed unappealing to me in my youthful penchant for rigor (p. 237).

A note: With typical understatement, the work that Festinger waves away as "on statistics" was, in fact, the invention of the well-known nonparametric statistical technique that has come to be known as the Mann-Whitney U-test (Festinger, 1943b.) He also began to craft a comprehensive literature on a variety of other non-parametric statistics: specifically the calculation of the significance of means from atypical and skewed samples (Festinger 1943c).

Festinger, L. (1943b). An exact test of significance for means of samples drawn from populations with an exponential frequency distribution. *Psychometrika, 8*, 153–160.

The author describes a new nonparametric test for determining the significance of the difference between two means, when the samples are drawn from exponential populations. Examples of situations in which this test should be used are provided, together with a description of the computational procedures required for such tests. Comparisons of the results of this test with the erroneous application of the critical ratio on actual data show that rather large discrepancies exist between the two tests. Results obtained by applying tests which assume normality for exponential distributions are shown to be subject to much error.

Festinger, L. (1943c). A statistical test for means of samples from skewed populations. *Psychometrika, 8*, 205–210.

What is the best way to determine if two means are different if samples are drawn from positively skewed populations? In this paper the author proposes techniques for dealing with such samples—specifically those possessing a Pearson Type III distribution function.

Festinger, L. (1980a) Looking backward. In L. Festinger (Ed.), *Retrospections on social psychology* (pp. 236–254). New York: Oxford University Press.

Festinger offers personal reminiscences of the early days of social psychology, the changes in the field that have occurred within his lifetime, and ideas as to where the field ought to go. He focuses primarily on work inspired by the University of Michigan Research Center for Group Dynamics.

In time, Lewin and Festinger became fast friends. Thus, even after receiving his MA (in 1940) and his PhD (in 1942), Festinger stayed at Iowa and continued working with Lewin. During this period, he also collaborated with Dorwin ("Doc") Cartwright, devising a mathematical model of decision making (Cartwright & Festinger, 1943; Festinger 1943d and e), and with Kenneth Spence (Festinger, 1943a), publishing a paper on taste preferences in rats. This paper is a forerunner of the work he was to conduct 20 years later with Douglas Lawrence (Lawrence & Festinger, 1962) on cognitive dissonance and deterrence in rats.

Cartwright, D., & Festinger, L. (1943). A quantitative theory of decision. *Psychological Review, 50*, 595–621. (originally written as a Ph.D dissertation: An Experimental Test of a Theory of Decision." State University of Iowa, 1942.)

The authors contend that a scientific theory should be clearly stated and lend itself to mathematical quantification. They then propose a theory of decision making that combines a topological analysis with a vector analysis. Through mathematical elaboration, the theory is quantified in a form amenable to empirical testing. It is suggested that, irrespective of school of thought, this type of approach can be employed to measure dynamic factors in a psychological setting.

Festinger, L. (1943a). Development of differential appetite in the rat. *Journal of Experimental Psychology, 32*, 226–234.

The authors point out that there has been little research on how rats develop food preferences. A group of rats was given a choice between a 10-second feeding of one food and a one-minute feeding of a different food. On Day 1 of the experiment, the rats' appetites for the two foods were identical. After 24 days, however, the rats had developed a clear food preference. They had an increased preference for the food that had been harder to come by. When they were very hungry, however, this preference disappeared. The hard-to-get is only valued when food is plentiful.

Festinger, L. (1943d). Studies in decision: I. Decision-time, relative frequency of judgment and subjective confidence as related to physical stimulus difference. *Journal of Experimental Psychology, 32*, 291–306.
Five subjects made 2,400 judgments as to length of line, utilizing the method of constant stimuli. The aim was to determine the nature of factors shaping decision-time and degree of confidence in judgments. The data (including comparisons made when accuracy, speed, and constant error were successively accentuated in the instructions) were interpreted in terms of deviations from a quantitative theory of decision.

Festinger, L. (1943e). Studies in decision: II. An empirical test of a quantitative theory of decision. *Journal of Experimental Psychology, 32*, 411–423.

Once again five subjects made judgments as to the length of a variety of lines. The method of constant stimuli, which included a two-category mode of judgment, was employed. The experimental data were found to fit rather well with theoretically predicted derivations with respect to decision-time and relative frequency of judgment. The methodological significance of this type of theoretical analysis was stressed.

Lawrence, D. H. & Festinger, L. (1962). *Deterrents and reinforcement: The psychology of insufficient reward.* Stanford: Stanford University Press.
This volume attempts to apply the theory of cognitive dissonance to problems in animal learning. The general argument is that if an organism continues to engage in an activity while possessing information that, considered alone, would lead it to discontinue the activity, it will develop extra attraction for the activity (in order to give itself additional justification for continuing to engage in the behavior). In a series of 15

original experiments with rodents, this argument was applied to the effects of partial reward, delay of reward, and high effort on resistance to extinction. As predicted, the authors found that the number of unrewarded trials (not the ratio of rewarded to unrewarded trials) during acquisition determined resistance to extinction, and that increasing the effort that an animal must expend in order to reach a reward increased the resistance to extinction. Several other results, usually consistent with dissonance theory, were also reported.

The University of Rochester

(1943-1945)

It was still wartime, however, so in 1943 Festinger joined the Committee on Selection and Training of Aircraft Pilots, where he worked as a statistician at the University of Rochester until the war's end. In 1943, Festinger married Mary Oliver Ballou, a pianist and the departmental secretary, with whom he had three children—Catherine (Katie), Richard, and Kurt. Among the papers Festinger published on his statistical innovations while he was at Rocherster are Festinger (1946,1947a, 1950b and 1951a.).

Festinger, L. (1946). The significance of difference between means without reference to the frequency distribution function. *Psychometrika, 11*, 97–105.

The author points out that existing tests for the significance of difference between means possess a serious flaw: they require specific (and rarely met) assumptions concerning the distribution of the given

population. The author points out the need for a test that does not possess this flaw and sets out to derive just such a test. The early nonparametric test he proposes is simple and requires a minimum of calculation. Better yet, it may be safely used with any kind of distribution.

Festinger, L. (1947a). The treatment of qualitative data by "scale analysis." *Psychological Bulletin, 44,* 149-161.
This paper reviews the literature with reference to the theory of scale analysis, the various techniques of scale construction which exist using this method, and the evaluation and interpretation of the scales developed.

Festinger, L. (1950b). Psychological statistics. *Psychometrika, 15*, 209–213.

An in-depth review of Quinn McNemar's *Psychological Statistics,* a text that soon became the standard in psychology.

Festinger, L. (1951a). Assumptions underlying the use of statistical techniques. In M. Jahoda, M. Deutsch, & S. W. Cook (Eds.). *Research methods in social relations with special references to prejudice, Part II: Selected techniques* (pp. 713-726). New York: Dryden.

The author divides the types of data with which prejudice researchers must deal into two classes: one in which the data are in the form of frequencies of occurrence or nonoccurrence (enumerations), and another in which the data take the form of numbers along a scale of values. He describes the kinds of statistical tools that are available for each of these classes of data, the difficulties inherent in them, and the limitations of their use.

Massachusetts Institute of Technology:

(1945-1948)

In 1945, Lewin moved to MIT, where he founded the Research Center for Group Dynamics, and Festinger followed along. The MIT group consisted of a number of illustrious social psychologists: Dorwin ("Doc") Cartwright, John R. P. French, Jr., Ronald Lippitt, Marian Radke (now Yarrow), and Alvin Zander. The first psychology class taught by this staff included students Kurt Back, Morton Deutsch, Harold H. Kelley, Albert Pepitone, Stanley Schachter, and John W. Thibaut—all now luminaries of social psychology.

Throughout his life, Festinger possessed a profound dedication to theorizing on important topics and to utilizing creative and rigorous experimental methods, especially laboratory and field experiments. During his early days at MIT, he began to focus on social communication in small groups. For Festinger (1980a), the move to MIT marked a turning point in his career. As he recalled: "the years at M.I.T. seemed to us all to be momentous, ground breaking, the new beginning of something important" (pp. 237-238.) His then student Stanley Schachter (1994) agreed. He observed: "I was lucky enough to work with Festinger at this time, and I think of it as one of the high points of my scientific life" (p. 102). During this period, Festinger and his

colleagues published a numbers of papers that have become classics in the field (see Festinger, 1980a and b).

Festinger, L. (1980a) Looking backward. In L. Festinger (Ed.), *Retrospections on social psychology* (pp. 236–254). New York: Oxford University Press.

Festinger offers personal reminiscences of the early days of social psychology, the changes in the field that have occurred in his lifetime, and ideas as to where the field ought to go. He focuses primarily on work inspired by the University of Michigan's Research Center for Group Dynamics.

Festinger, L. (Ed.). (1980b). *Retrospections on social psychology.* Oxford: Oxford University Press.

A collection of personal views (from leading social psychologists) and interpretations as to where social psychology began, where it is now, how it got here, and where it ought to be going. A delightful collection of personal views.

Schachter, S. (1994). Leon Festinger: 1919-1989. A biographical memoir. *National Academy of Sciences Biographical Memoirs, 64,* 99-111.

This biography is a detailed and reverence-filled account of Leon Festinger's academic achievements, honors, and interests. Schachter, who was a former colleague of Festinger's, writes of the unique genius that Festinger possessed and of his ever-lasting impact on the fields of cognition, social psychology, and visual and perceptual systems. Like many of the biographies written about this enigmatic mastermind, Schachter's account describes Festinger's tendency to get bored with his work and to shift his focus to entirely new fields. These varied interests led him to study "Lewinian" psychology, social psychology, visual perception, archaeology, and the history of religion. Through his diverse studies Festinger was able to make significant multi-disciplinary contributions, which Schachter argues enriched every area that he touched.

The Proximity Effect

Festinger, Schachter, and Back (1948) conducted a study designed to assess college students' satisfaction with MIT's married-student housing complex. The project was commissioned by MIT's Department of Architecture and City Planning. In the complex, all the apartments, except for the end houses, were arranged around U-shaped courts. The two end houses in each court faced onto the street. Festinger and his colleagues arrived at the unsettling conclusion that, to a great extent, the architects had unknowingly shaped the social lives of their residents. The major determinant of who became friends was mere proximity—the distance between apartments. Friendships sprang up more frequently between next-door neighbors, less frequently between people whose houses were separated by another house or two, and so on. As the distance between houses increased, the number of friendships fell off so rapidly that it was rare to find a friendship between people who lived in houses more than four or five units apart.

Any architectural feature that forced residents to bump into other residents now and then tended to increase their popularity. For example, people with apartments near the entrances and exits of the

stairways naturally met more people and thus made more friends than did other residents. The residents of the apartments near the mailboxes in each building also had an unusually active social life. Any architectural feature that took a person even slightly out of the traffic mainstream had a chilling effect on his or her popularity. In order to have the street appear "lived on," 10 of the apartments had been turned so that they faced the street, rather than the court. This apparently small change had a considerable effect on the lives of the people who happened to occupy these end houses. These people—who had no next-door neighbors—ended up with less than half as many friends in the complex as their peers. Architecture had made them involuntary social isolates. (This research was reported in Brehm & Festinger, 1957; Festinger, et al., 1948; Festinger, 1949; and Festinger, 1951b and c.)

Festinger, L., Schachter, S., & Back, K. (1948). *Social pressures in informal groups.* Cambridge, Mass.: MIT Press.

This book describes a classic study designed to find out what impact various architectural features have on people attitudes, opinions, values and goals. The authors studied 270 veteran families who were housed in a housing project at the Massachusetts Institute of Technology. The authors used a variety of research techniques—informants, observation, interviewing, and experiments—only to discover the profound impact that architecture can have on people's lives. The relationship between three specific variables was considered: physical and functional distance; passive contacts; and

features of design. With a focus on the formation of friendships and small groups within the student community, the authors found that propinquity predictably moderated the likelihood of relationship development. That it, the greater the physical or functional distance between people, the less likely friendships will develop between them; the closer the distance, the more likely friendships were to form. (This text has been published five times: in 1948, 1950, 1959, 1963, and 1967, under slightly different titles. They all contain the same material, however.)

Festinger, L. (1949). The analysis of sociograms using matrix algebra. *Human Relations, 2*, 153–158.

One of the most popular measurement techniques in sociology is the sociogram. Sociometric questions such as "Who are your best friends?" are often used when researchers are interested in the structure or patterning of relationships. Without an adequate representational technique for dealing with the complex data, however, past researchers have had to resort to simple and inadequate analyses. The author offers a solution for that problem.

Festinger, L. (1951b). Informal communications in small groups. In H. Guetzkow (Ed.). *Groups, leadership, and men* (p. 41). Pittsburgh: Carnegie.

This volume is a transcript of a 1950 meeting of a panel of the Human Relations and Morale Branch of the Office of Navel Research. The 23 papers are divided into three areas: leadership, individual behavior, and group behavior. Four appendices present a guide for the preparation of proposals, a glossary of terms, the personnel roster of the ONR and the panel, and an index. Once again, we see Festinger trying to show scholars how basic research on communication in small groups can be applied in the solving of practical problems.

Festinger, L. (1951c). Architecture and group membership. *Journal of Social Issues, 7*, 152–163.

Architects and city planners have traditionally focused on meeting their clients' aesthetic and physical needs. The author argues that they must also worry about the social consequences of their architectural decisions—pointing out space has an important impact on people's

social networks.

Brehm, J., & Festinger, L. (1957). Pressures toward uniformity of performance in groups. *Human Relations*, *10*, 85-91.
In group settings, there often arises a pressure within the individual to maintain uniformity with others. This pressure can arise as a result of an individual's effort to accurately assess his own opinions or abilities. In the absence of a "physical reality," he will tend to gauge his opinions or abilities against those of other group members. The degree to which these self-assessments are accurate is moderated by the extent to which one's opinions or abilities are similar to those with whom one is comparing him or herself.

In subsequent research, one sociologist (Clarke, 1952) demonstrated that propinquity even has a hand in whom people marry. People's search for the ideal mate often ends with the boy or girl next door—or, if they are unusually daring, with the man or woman a mile away. Clarke interviewed 431 couples at the time they applied for a marriage license. He found that, at the time of their first date together, 37% of the couples were living within eight blocks of one another and 54% lived within 16 blocks of one another. As the distance between the residences increased, the number of marriages decreased steadily. Love seemed unable to survive a very long subway ride!

Clarke, A. C. (1952). An examination of the operation of residential propinquity as a factor in mate selection. *American Sociological Review, 17,* 17-22.
Sociologists have argued that propinquity is critically important in mate selection. Many have found that most marriages occur among city

dwellers living in close proximity to one another. Clarke demonstrates that propinquity also shapes how likely men and women are to meet and date.

Informal Social Communication

Festinger's recognition as to the critical role that friendships play in informal social communication, and their influence on attitudes and behavior came about almost as an accident. While conducting the MIT study as to the impact of architecture on MIT students' friendship choices, he discovered that casual friendships had a profound impact on communication. Groups of students who were sociometrically close tended to possess highly similar attitudes. Secondly, those who didn't agree with the majority, tended to become social isolates—that is, they were rarely chosen by the others as friends. This was, of course, a correlational study. One could speculate endlessly, but it is impossible to tell from this study alone if good friends pressured one another to share their attitudes or if people simply liked those who shared their attitudes and beliefs.

Robert Zajonc (1990) observed that worrying through the meaning of these facts led Festinger and his students to develop a program of research that many consider to have been the birth of systematic experimental social psychology. Their challenges in trying to pin down

the casual relations in the MIT study were daunting; they had to devise technique for manipulating such elusive social variables as group structure, affection, social cohesion, deviancy, and the like. They had to devise controls to rule out alternative explanations. They had to invent means of unobtrusively measuring the effects of their manipulations on variables such as communication, social influence, and its direction and intensity. Zajonc (1990) recalls:

> Along with Kurt Back, Harold Kelley, and John Thibaut, I was lucky enough to work with Festinger at this time, and I think of it as one of the high points of my scientific life. He was a wildly original and provocative scientist. It was a time of excitement, intense involvement, discovery, and fun. Working with Festinger was always fun. He was a great kibitzer, and he loved puzzles, problems, and games. He had little tolerance for banality or for tired ideas. We devised laboratory experiments for studying phenomena that, until then, no one had conceived of as manipulable or measurable. We discovered things no one had known before—virtually a *sine qua non* before Festinger thought an experiment worth doing (p. 102).

Zajonc, R. (1990). Obituaries: Leon Festinger (1919-1989). *American Psychologist, 45,* 661-662.

Robert Zajonc, an accomplished social psychologist in his own right, refers to Leon Festinger as “experimental social psychology’s Picasso.” In this obituary, Festinger’s work is likened to art in many respects as Zajonc recounts the creativity and inventiveness that his research entailed. He argues that had Festinger never existed, social psychology would be a vastly different field than it is today, and that it is likely experimental social psychology may never have manifested. After detailing Festinger’s varied research and

accomplishments, which are impressive to say the very least, Zajonc ends this reverential obituary with a humorous quote from Festinger himself, who was known to be an avid smoker, "Make sure everyone knows that it wasn't lung cancer!" Of course it was.

Festinger (1950a) synthesized all of this work in a seminal paper concerned with informal social communication and the processes, via social comparison, that people utilize in order to demonstrate the correctness of their attitudes and beliefs. Research in support of his theories as to the role of informal communication in attitude change has been published in a series of compelling and interlocking papers (see Festinger, 1947b and 1950a; Festinger, et al., 1948; Back, Festinger, et al., 1950; Festinger, Schachter, & Back, 1948; Festinger & Kelley, 1951; and Festinger & Thibaut, 1951).

Festinger, L. (1947b). The role of group belongingness in a voting situation. *Human Relations, 1*, 154–180.
The relationship between one's formal group memberships (belongingness) (i.e., Jewish or Catholic) and one's political preferences was examined. How would Jews and Catholics vote when they knew (or did not know) the religious affiliation of candidates—who gave identical speeches? While both Jews and Catholics displayed favoritism for "their" candidates, Jews were more affected by the situation, their behavior tending to be more complex than that of their peers.

Festinger, L., Cartwright, D., Barber, K., Fleischl, J., Gottsdanker, J., Keysen, A., & Leavitt, G. (1948). A study of a rumor: Its origin and spread. *Human Relations, 1*, 464–486.
Researchers were studying the effects of community activity programs on the social life of a housing project, when a false rumor as to the nature of the investigation arose. Gossips claimed that the research

was actually communist inspired. This had a devastating effect on the project. Taking advantage of the situation, the authors switched to studying rumor transmission. Data were collected from informal reports and a retrospective questionnaire given to the members of the project. Steps taken to combat the rumor were also briefly reported. Three theoretical principles concerning rumor transmission were advanced: rumors arise when people are unable to control those factors disrupting their existence, where "cognitive regions especially relevant to immediate behavior are largely unstructured," and lastly: "once the central theme of a rumor is accepted, there will be a tendency to reorganize and to distort items so as to be consistent with the central theme."

Festinger, L., Schachter, S., & Back, K. (1948). *Social pressures in informal groups.* Cambridge, Mass.: MIT Press.
In commenting on this book, psychologist Ted Newcomb observed that "there is no better source of evidence of the ways in which person-to-person interaction is dependent upon spatial layout." This book describes a study designed to find out what impact various architectural features have on people attitudes, opinions, values and goals. The authors studied 270 veteran families who were housed in a housing project at the Massachusetts Institute of Technology. The authors used a variety of research techniques—informants, observation, interviewing, and experiments—only to discover the profound impact that architecture can have on people's lives. (This text has been published five times: in 1948, 1950, 1959, 1963, and 1967, under slightly different titles. They all contain the same material, however.)

Back, K., Festinger, L., Hymovitch, B., Kelley, H., Schachter, S., & Thibaut, J. (1950). The methodology of studying rumor transmission. *Human Relations, 3*, 307–312.

When conducting a study on the impact of architecture on social life, the authors found their project plagued by rumors. They decided to take advantage of this problem and study the spread of rumors and the effectiveness of attempts to scotch them. The pros and cons of post-rumor interviews versus participant observation were discussed. They discovered that he first of these techniques yields limited data and is

subject to error. The latter offers more promise, although it still possesses difficulties such as sample bias.

Festinger, L. (1950a). Informal social communication. *Psychological Review, 57*, 271-282.
The author argues that if a theory attempts to become too precise too soon, research will become sterile. If a theory stays vague and ambiguous for too long, it is harmful in that nothing can be done to improve it. The author proposes a theory that he believes is just right. He proposes a series of hypotheses as to the nature of informal social communication. He then presents data from field studies and laboratory experiments designed to test these hypotheses. Three sources of pressures to communicate are considered: communication arising from pressures toward uniformity in a group, communications arising from forces to wend one's way through a social structure (to win group appreciation, to gratify needs, or work for the achievement of some group goal), and communications arising from the existence of emotional states. He concludes that all these factors are important.

Festinger, L., & Kelley, H. (1951). *Changing attitudes through social contact.* Ann Arbor: Institute for Social Research.
Both residents and nonresidents of community housing projects tended to consider those living in the project as "low class". By a program of community activities involving both groups, an effort was made to change people's negative stereotypes. Results found that the attitudes were improved only for those individuals who had been initially favorably disposed toward the program.

Festinger, L. & Thibaut, J. (1951). Interpersonal communication in small groups, *The Journal of Abnormal and Social Psychology, 46,* 92-99.
Small face-to-face groups often have a profound impact on people's attitudes and opinions. Groups tend to share attitudes; the more attractive a group is, the greater the impact it has in shaping members' attitudes. Members who refuse to conform to group attitudes are likely to find themselves shunned. Why is this so? In this experiment, the authors manipulated the amount of perceived pressure toward uniformity and the extent to which members perceived the group as homogeneously composed. It was found that in a given group,

> communications tend to be directed towards those members whose opinions are at the extremes of the range. The greater the pressure toward uniformity and the greater the perception of homogeneous group-composition, the greater is the tendency to communicate with these extremes, and the greater was the actual change toward uniformity.

The University of Michigan

(1948-1951)

When Lewin died in 1947, the fledgling Research Center for Group Dynamics found itself adrift. With the intersession of Rensis Likert (Director of the Survey Research Center) and Donald Marquis (head of the Psychology Department), in 1948 the Center was invited to move to the University of Michigan, which was already well-known for its research in the social sciences. Festinger decided to move to Ann Arbor with his MIT colleagues, accepting a position as Associate Professor of Psychology and serving as Program Director for the new Research Center for Group Dynamics. Among the big names already at Michigan were Theodore Newcomb and Daniel Katz. Just two years before, a bevy of eminent psychologists (including Angus Campbell, George Katona, Charles Cannell, and Leslie Kish), who had worked at the Bureau of Agricultural Economics during World War II, had moved to Michigan and established the Survey Research Center. In 1949, the two groups merged—establishing the

Institute for Social Research. The group's first project was to collaborate on crafting a handbook for researchers in the social sciences (See Festinger, 1953a, and Festinger & Katz, 1953.)

Festinger, L., & Katz, D. (Eds.). (1953). Laboratory Experiments. In L. Festinger, & D. Katz (Eds.) *Research methods in the behavioral sciences.* (pp. 137-172). New York, NY: Dryden

Laboratory experimentation is a critical component of scientific research. The authors define "a social psychological laboratory experiment" and explain how the findings from such experiments can be used to inform researchers about real-world concerns. They go on to detail some of the pitfalls and challenges inherent in conducting laboratory studies and then provide suggestions for how to design and carry out experiments which avoid these pitfalls. This chapter provides relatively in-depth advice on how to appropriately conduct well-designed and relevant laboratory experiments.

Festinger, L., & Katz, D. (Eds.). (1953). *Research methods in the behavioral sciences.* New York, NY: Dryden

The Center for Group Dynamics at the University of Michigan collaborated on crafting this comprehensive guide to research methods in the social sciences. The text features the work of 19 scholars, from various areas in the social sciences writing on several specialized topics. These include the relationship between theory and methods; methodological techniques (e.g., survey, laboratory, interview, and field study research); measurement and statistical methods; and the analysis of qualitative material, to name a few.

The prestigious ISR scientists were pioneers, working at the frontiers of social psychology. They were devising new theories, creating new methods designed to explain the behavior of people in groups, and applying these methods to improving society. They studied, for example,

topics like the impact of different types of leadership on group performance, the effect of discrimination on group morale and productivity (Schachter, et al., 1961), and tried to devise methods for combatting prejudice.) The collective presented their innovative research around the country—influencing social psychologists throughout the United States. (For a survey of these papers, see Festinger, 1950d and 1955b; Festinger, et al. 1950; and Schachter, et al., 1961).

Festinger, L. (1950d). Current developments in group dynamics. In *social work in the current scene, 1950: Selected papers, 77th annual meeting, National Conference of Social Work, Atlantic City, New Jersey, April 23-28* (pp. 253-265.) New York: Columbia University Press
Festinger described the newly established Center for Group Dynamics at the University of Michigan. He then reported on several U of M studies. One indicated that prestige is awarded within groups on the basis of volume of activity rather than effectiveness of activity. Another study found that bringing people together who possess hostile attitudes toward each other does not necessarily reduce the hostility and eradicate misunderstandings, but in some instances may actually increase problems. Finally, in three experiments with groups with varying degrees of cohesiveness, revealed that once pressures toward uniformity begin operating within a group, three concurrent processes develop: attempts to influence those whose opinions are different from one's own; a readiness to be changed by others in the group; and a tendency to reject those whose opinions are different from one's own. Festinger emphasized the need for more extensive research in this field, and urged effective cooperation between researchers and practitioners so that application of the data could be made practicable.

Festinger, L., Back, K., Schachter, S., Kelley, H. H., & Thibaut, J. (1950). *Theory and experiment in social communication: Collected papers.* Ann Arbor: Institute for Social Research.

Scholars from the Research Center for Group Dynamics at the University of Michigan described a program of research in the area of social communication, including two field studies and a number of laboratory experiments. This compilation presents a theoretical orientation for the reader and a collection of laboratory studies and experiments conducted by the group. These studies focused primarily on two sets of problems: communication in hierarchical structures and communication stemming from pressures toward uniformity in groups.

Festinger, L. (1955b). Social psychology and group processes *Annual Review of Psychology, 6,* 187-216

This chapter represents an effort to produce a relatively complete "How To" manual to social psychological research techniques, with an emphasis on group processes. The author provides suggestions for how to conduct public opinion surveys, laboratory experiments with groups, how to manipulate and measure variables, and much more. Each chapter covers a specific methodological approach to research and is authored by scholars with considerable knowledge and expertise pertinent to the topics of study. The author suggests that, while this book does not succeed in covering *all* aspects of group process research, it is nevertheless a very helpful resource.

Schachter, S., Festinger, L., Willerman, B., & Hyman, R. (1961). Emotional disruption and industrial productivity. *Journal of Applied Psychology*, *45*(*4*), 201-213.

Introducing new and unfamiliar working procedures in various industries often requires a transition period, which can result in an increase in emotional turmoil and a decrease in productivity. In this paper the authors hypothesize that, as a result of this emotional turmoil, tasks requiring reflection and attentiveness will suffer the greatest disruption, while more routine tasks will be least affected. To test their hypotheses, the authors conducted a series of three field experiments on assembly workers. By creating two groups (one in a "favored" condition and the other in a "disfavored" condition) the researchers were able to measure the impact of emotional state on productivity prior to and during the implementation of procedural change. The hypotheses were supported by the results of these studies.

During his time at Michigan's Center, Festinger also continued exploring topics that had long interested him: issues of interpersonal relations, the development of social science methodology, and the solution of perplexing statistical problems.

The University of Minnesota

(1951-1955)

In 1951, Festinger accepted an offer as Professor of Psychology at the University of Minnesota, where Stanley Schachter and Ben Willerman were already ensconced. Later, Henry Riecken came to Minnesota and the trio formed an active research group—the Laboratory for Research in Social Relations. During his first years there, Festinger continued to study the behavior of people who belonged to cohesive groups—ranging from Shriners to the Ku Klux Klan (Festinger, Pepitone, & Newcomb, 1952, and Festinger, 1953b)—and the fate of people who dared to challenge group values and beliefs (Festinger, et al., 1952).

Festinger, L., Gerard, H., Hymovitch, B., Kelley, H. H., & Raven, B. (1952). The influence process in the presence of extreme deviates. *Human Relations, 5*, 327–346.

The authors propose that pressures toward uniformity (in a group) are manifested in three ways: a readiness to change one's own opinion,

attempts to influence others in the group, and a tendency to reject those who disagree. These hypotheses were tested in a situation populated by conformers and extreme deviates. In these groups, the correct answer did or did not exist. Groups were asked to read and discuss a case history; unbeknownst to them, however, some members had received different instructions. In general, deviates behaved in the predicted way in the conditions where there was pressure toward uniformity.

Festinger, L., Pepitone, A. & Newcomb, T. (1952). Some consequences of de-individuation in a group. *Journal of Abnormal and Social Psychology, 47*, 382–389.

De-individuation is a state of affairs in which members' own personalities can be submerged in a group. Instead of being aware of themselves as individuals, they think of themselves as members of an anonymous mass. (Think members of the Ku Klux Klan, violent crowds, lynch mobs, etc.). In such settings, the authors argue, members do not feel the spotlight is on *them.* Thus they feel free to indulge their own worst instincts. It was further hypothesized that people enjoy this feeling of freedom and thus tend to find such groups attractive. The data from a laboratory study tended to confirm the theory.

Festinger, L. (1953b). An analysis of compliant behavior. In M. Sherif & M. O. Wilson (Eds*.). Group relations at the crossroads* (pp. 232-256). New York: Harper.

The author discusses how public compliance may be achieved either with or without private acceptance. It is argued that in the absence of private acceptance, public compliance is still likely to occur assuming the individual is coerced or perceives the threat of retribution for noncompliance. On the other hand, if the individual holds private acceptance and wishes to maintain good relations with his or her coercers, it is also likely that public compliance will occur.

Social Comparison Processes

In 1954, Festinger (1954a) published his now classic paper on social comparison processes. He argued that people possess a powerful drive to evaluate their attitudes and abilities. If possible, they seek objective information about the correctness of their opinions and the value of their talents, but if such information is unavailable, they will be forced to compare themselves with other people in order to get information about their standing. It is those we most admire and to whom we feel closest that we use as points of reference. (Accurate comparisons are difficult if others are too divergent from oneself.) A beginner at chess, for example, would be foolish to try to assess his talents by comparing himself with IBM's Big Blue or Bobby Fisher, a former world champion. When attempting to assess their own *abilities,* people tend to compare themselves slightly upward—reflecting the desire to do better and better. In a closely reasoned set of nine hypotheses, Festinger made a plethora of predictions as to with whom we compare ourselves, when, and under what conditions.

What do people do when they encounter a discrepancy in attitudes? They take action. They may change their own attitudes or try to change those of their peers. Festinger (1954a) concluded that:

> . . . social influence processes and some kinds of competitive behavior are both manifestations of the same socio-psychological processes . . . [namely] the drive for self

> evaluation and the necessity for such evaluation being based on comparison with other persons (p. 138.)

Festinger concluded by discussing the implications of social comparison theory for society—hypothesizing that people tend to associate with groups that possess attitudes and abilities similar to their own. This results in a segmented and sometimes acrimonious society. Festinger would have had a lot to say about the current political division into Red state and Blue state America. He would also certainly be interested as well in the fracturing that has become so pronounced on the Internet.

In subsequent years, Festinger and his followers began to focus on social comparison as a technique for self-enhancement, introducing the concepts of downward and upward comparisons, and expanding our knowledge of the motivations of people in comparing themselves to others (see Festinger, 1954a and c; Festinger & Hutte, 1954; and Festinger, et al., 1954.)

Festinger, L. (1954a). A theory of social comparison processes. *Human Relations, 7*, 117–140.
The author proposes a new and improved theory of social comparison. Specifically he argues that influence processes in social groups affect both opinion formation and the appraisal of one's own abilities. He offers a series of hypotheses as to with whom, where, when and why people compare themselves with others in an attempt to assess their own abilities. He ends with speculation as to the implications of social comparisons for group formation and social structure.

Festinger, L. (1954c). Motivations leading to social behavior. In M.R. Jones (Ed.), *Nebraska symposium on motivation*, (pp. 191-219). Lincoln, NE: University of Nebraska Press.

In contrast to the assumptions of many of his contemporaries, the author argues that the same motives that account for non-social behavior may account for at least some social behavior, as well. As an example, he suggests that when an individual is motivated to assess his capabilities, under certain conditions he will engage in a social comparison process, evaluating how his abilities stack up against the abilities of others. As a result of this comparison, it is suggested that he will experience pressure towards uniformity. However, when an individual's abilities in a given dimension are very different from those of another person, he will be less inclined to compare himself with that other person. The author also suggests that the degree to which belonging to a group is perceived to be important and relevant to an individual, he will experience greater pressures toward uniformity.

Festinger, L. & Hutte, H. A. (1954). An experimental investigation of the effect of unstable interpersonal relations in a group. *The Journal of Abnormal and Social Psychology*, *49*, 513-522.

What happens when the members of a group are led to believe that other group members whom they like dislike one another? To answer this question, the authors conducted an experiment in which they manipulated the perceived stability of relationships between group members. The authors found that when group members believed that the members they liked most disliked each other, they tended to feel less secure about their own relationships within the group. Members also tended to talk less to members with whom they felt indifferent, irrespective of their own sense of instability. Interestingly, those who perceived their associations with other group members to be unstable held more accurate perceptions of how others perceived them. The authors posit that a sense of instability may have led to greater vigilance and attention to cues.

Festinger, L., Torrey, J., & Willerman, B. (1954). Self-evaluation as a function of attraction to the group. *Human Relations, 7*, 161–174.
In developing social comparison theory, the authors test a two-pronged hypothesis: It is posited that (1) the greater the desire of persons to gain or maintain membership in a group, the more salient will be the sense of inferiority/inadequacy when those members fail to perform as well as other group members, and (2) When individuals' performances are superior to (or comparable with) the performance of other group members, the more competent/adequate individuals will judge themselves to be. Social comparison theory is supported by the results of this study.

For reviews of current theorizing and research concerning with whom, when, where, and why people compare themselves to others, see Hoffman, Festinger, and Lawrence (1954); Suls and Miller (1977 and 2000); Kruglanski and Mayseless (1990); Suls, Martin, and Wheeler (2002).

Hoffman, P. J., Festinger, L., & Lawrence, D. H. (1954). Tendencies toward group comparability in competitive bargaining. *Human Relations*, *7*, 141-159.
It has been demonstrated that under certain conditions, people will tend to rate their performance relative to the performance of comparable others, rather than rating their performance in absolute terms. In this paper, the authors conducted an experiment aimed at investigating how these processes unfold within triads. Specifically, the authors created conditions in which two of three group members had to collaborate against a third in order to earn points in a competitive bargaining task. It was predicted that factors such as perceived task importance and peer/non-peer status would influence which participants would be more or less likely to join forces. In each of the conditions, only one of the three group members was paid and given an initial advantage in the task.

Suls, J. M., & Miller, R. L. (1977). *Social comparison processes: Theoretical and empirical perspectives*. New York: John Wiley & Sons.

This collection of scientific papers, which is intended to serve as a handbook for social comparison-related research, includes reviews, new research findings, and recommendations for future investigations of social comparison theory, self-evaluation, social influence, decision-making, and affiliation.

Kruglanski, A. W., & Mayseless, O. (1990). Classic and current social comparison research: Expanding the perspective. *Psychological Bulletin,* 10, 195-208.

In this critique of classical social comparison theory, the authors highlight two major issues. First, Festinger's theory provides a fixed notion of social comparison in which individuals are automatically driven to compare themselves to similar others and typically do so for the sake of evaluative accuracy. Second, the theory's narrow scope renders it incapable of addressing a number of significant issues in current social comparison research. Examples of these more contemporary issues include research investigating diverse types of possible comparisons (i.e., with dissimilar others), affective consequences of comparison against qualitatively different standards, and the psychological significance of the distinction between the self and others. The authors conclude that individuals' motivations for comparison may vary as a function of situational, personality, and cultural factors. Additionally, the preference for and impact of comparison with similar other is dependent on motivational compatibility, perceived relevance, and rule accessibility. Finally, the authors argue that the comparison process is consistent across domains.

Suls, J. M., & Wheeler, L. (2000). *Handbook of social comparison: theory and research*. New York: Springer.

Comparison of objects, events, and situations is integral to judgment; comparisons of the self with other people comprise one of the building blocks of human conduct and experience. After four decades of research, the topic of social comparison is more popular than ever. In this timely handbook a distinguished roster of researchers and theoreticians describe where the field has been since its development in the early 1950s and where it is likely to go next.

Suls, J. M., Martin, R. & Wheeler, L. (2002). Social comparison: Why, with whom and with what effect? *Current Directions in Psychological Science,* 11, 159-163.

Since the time of its inception, social comparison theory has expanded to include concepts from social cognition, emotion research, cognitive psychology, self-theory, and the study of naturalistic experience. The authors discuss the unique contributions of the proxy model, which asserts that individuals will consider the ability of another similar individual on a particular task as a way of predicting their own future ability if they were to pursue said task, and the triadic model, which posits that individuals look to others with similar attributes to draw conclusions about their own preferences and beliefs. The various components associated with upward and downward social comparisons are also discussed.

Shortly after publishing social comparison theory, Festinger was named one of America's 10 most promising scientists by *Fortune Magazine.* Psychologists are not eligible for a Nobel Prize, of course, but many of the other *Fortune* nominees went on to win a Nobel (Zajonc, 1990, p. 103).

Zajonc, R. (1990). Obituaries: Leon Festinger (1919-1989). *American Psychologist, 45,* 661-662.

Robert Zajonc, an accomplished social psychologist in his own right, refers to Leon Festinger as "experimental social psychology's Picasso." In this obituary, Festinger's work is likened to art in many respects as Zajonc recounts the creativity and inventiveness that his research entailed. He argues that had Festinger never existed, social psychology would be a vastly different field than it is today, and that it is likely experimental social psychology may never have manifested. After detailing Festinger's varied research and accomplishments, which are impressive to say the very least, Zajonc ends this reverential obituary with a humorous quote from Festinger

himself, who was known to be an avid smoker, "Make sure everyone knows that it wasn't lung cancer!" Of course it was.

Stanford University

(1955-1968)

In 1955, Festinger accepted an appointment as Professor of Psychology at Stanford University. It is during these years that I got to know him and to collaborate with him. One rarely mentioned fact about Festinger: in an era where women were not welcome in graduate programs, Festinger not only accepted them as students, but treated them as warmly (and critically) as he treated men. Among his students during the Stanford years were Jane Allyn (now Piliavin),[1] Marcia Braden, Danuta Ehrlich, Elaine Hatfield, and Sara Kiesler. At Stanford, he began to articulate what would become his best-known work—a theory of cognitive dissonance.

A Theory of Cognitive Dissonance

In 1934, a severe earthquake shook India. After the quake, people in one of the few villages that had escaped the catastrophe, began spreading rumors. Watch out! Worse disasters were on the way! A flood, death and destruction, and another (far worse) earthquake were on

[1] Many thanks to Jane Piliavin for editing this entry. She is a fine grammarian.

the way. A cyclone would soon sweep in, and other disasters were imminent. Why, asked Festinger, would people try to scare themselves with such fanciful tales? He soon came up with an answer. Although people in the villages were terrified, in fact no actual damage had befallen them or was likely to befall them in the near future. In effect, they had been (and were still) afraid, but for no reality-based reason. While in the classic sense, the rumors might not be "rewarding," they were rewarding in another way: they reduced dissonance by providing justification for the villagers' needless fears.

In 1957, Festinger published *A Theory of Cognitive Dissonance* (see Festinger, 1957a and b; Festinger, 1958; Festinger, 1962.) The theory proposed that when people possess two mutually inconsistent ideas (say, "There is a God" and "There is no God."), or when their attitudes and behavior are inconsistent ("Smoking can kill you," and "I smoke three packs a day,") people feel uneasy. (This latter inconsistency had special resonance for Festinger, who was a heavy Camels smoker.) The existence of such cognitive dissonance, being psychologically uncomfortable, will motivate people to try to reduce the dissonance and achieve consonance.

According to Festinger, people can reduce dissonance in three different ways: They can change the cognition or behavior (i.e., say, quit

smoking,). They can justify the cognition or behavior ("the evidence that smoking causes cancer is correlational and not causal."). They can add new cognitions ("I'll diet and reduce my risk that way."). Needless to say, people can also avoid situations that bring such dissonance to mind ("I am not will to spend time with health Nazis.")

Festinger, L. (1957a). A theory of cognitive dissonance. Evanston, IL: Row, Peterson.
The theory of cognitive dissonance is arguably one of the most well-established and influential theories within the field of social psychology. In this book, the author provides a formal exposition of the theory, explains the conditions under which dissonance will tend to become salient, and discusses the ways in which people seek to reduce or eliminate dissonance or avoid it altogether. Additionally, the author explores the nature of decision making, forced compliance, voluntary and involuntary exposure to information, and the role of social support in facilitating or attenuating dissonance. The text concludes with a summary of the material covered in each chapter and suggestions for future research. This text provides several theoretical derivations, each of which is followed by corroborative experimental evidence.

Festinger, L. (1957b). The relation between behavior and cognition. In J. S. Bruner (Ed.). *Contemporary approaches to cognition* (pp.127-150). Cambridge: Harvard University Press.
In an era in which behaviorism still dominated the field of psychology, Festinger argued that in order for cognitive research to gain its rightful place within the field, its theoretical assumptions and hypotheses should be specific and succeed in accounting for the research data. The author delineates a hypothesis pertaining to the relationship between cognition and behavior, presents implications of this hypothesis, and then discusses studies aimed at testing these implications.

Festinger, L. (1958). The motivating effect of cognitive dissonance. In G. Lindsay (Ed.) *Assessment of human motives* (pp. 65-85). New York: Rinehart

After discussing the construct of motivation, the author argues that cognitive dissonance possesses the constituents of a motivating state. He details similarities between dissonance and other “need states” and suggests data characteristics which lend support to dissonance theory. The author describes unusual circumstances in which dissonance reduction will still be likely to occur. Several field studies are discussed, followed by the presentation of a laboratory controlled experiment, the results of which provide robust support for dissonance theory.

Festinger, L. (1962). Cognitive dissonance. *Scientific American, 207*(*4*), 93-107.
Festinger presents cognitive dissonance theory in relatively simple terms, providing examples of its manifestation in everyday life. Specifically, he describes three situations in which dissonance arises and discusses the conditions under which it is likely to diminish. These examples include decision making, lying, and resisting temptation.

The theory sparked a spate of discoveries that were startling and counter-intuitive for the time—an era dominated by Skinnerian and behavorist ideas of reward and punishment as the fuel for almost all human behavior. Among the findings were the discoveries that people come to love things for which they suffer (Aronson & Mills, 1959); to believe the lies they tell for small rewards but not for large rewards (Festinger, 1959b; Festinger & Carlsmith, 1959; and to admire the people they reward and to despise the people they injure, rather than the other way around (see Walster [Hatfield], Walster, & Berscheid, 1978, for a summary of this research.) This research will be discussed below.

Aronson, E., & Mills, J. (1959). The effect of severity of an initiation on liking for a group. *Journal of Abnormal and Scoial Psychology, 59, 177-181.*

According to dissonance theory, when people go to a great deal of trouble to achieve a goal, they tend to value it more than if the achievement came easy. In this study, in order to join a group, some people were required to undergo a severe initiation, others a mild initiation, and others no initiation at all. Those in the condition demanding the most suffering came to value group membership more than did participants who underwent mild or no initiation. This article became a classic in social psychology because it challenged the notion that people are motivated solely by reward and punishment.

Festinger, L. (1959b). Some attitudinal consequences of forced decisions. *Acta Psychologica, 15*, 389–390.

In this short article, Festinger contrasts the arousal of dissonance in pre- and post-decision circumstances. It is explained that when an individual is confronted with a choice between alternatives of any consequence, she will typically weigh the pros and cons prior to making a decision. Once an alternative is chosen, however, she will tend to focus her mental efforts toward justifying the chosen alternative. The author provides an illustration of this phenomenon: when a person is pressured to overtly behave in a manner that is in conflict with her privately held convictions, engaging in said behavior will result in psychological discomfort. In order to regain psychological consonance, she will seek to reduce or eliminate this discomfort in one of several ways. For instance, she may attempt to modify her convictions so that they are in alignment with her behavior. Festinger presents a laboratory experiment conducted to test this assumption. Participants engaged in a boring task and were subsequently offered either a small or large sum of money to tell others that the task was actually fun and interesting—essentially a lie! It was discovered that those who were paid the smaller sum came to find the task *more* interesting than did those who were paid the larger sum. These results supported the notion that people will tend to experience greater dissonance, and hence engage in greater dissonance reduction, when they have little incentive (e.g., one dollar) for behaving (e.g., lying) in ways that are contrary to their convictions. Festinger concludes by citing the results of other studies which corroborate these findings.

Festinger, L. & Carlsmith, J. M. (1959). Cognitive consequences of forced compliance. *The Journal of Abnormal and Social Psychology*, *58*, 203-211.

In this article, the authors propose and test two principles from which cognitive dissonance can be predicted. The first of these principles states that when an individual is persuaded to behave—whether by word or deed—in a manner that is in conflict with his personally held convictions, he will attempt to alter his convictions so as to bring them in accord with his behavior. The second principle predicts that, while the application of *some* pressure will result in a revision of personally held convictions, if that pressure exceeds what is minimally necessary to elicit change, an individual will be *less* likely to modify his personal convictions. These assumptions were tested in a clever experiment. Participants engaged in a "boring" task, after which they were paid either a large or small sum of money to tell a subsequent participant that the task was actually quite fascinating and enjoyable. Those who received the smaller sum of money came to perceive the task as more interesting than did their well paid peers. The results of this study provide robust support for cognitive dissonance theory.

Walster [Hatfield], E., Walster, G. W., & Berscheid, E. (1978), *Equity: Theory and research.* Boston: Allyn, & Bacon.

Equity theory is designed to answer two questions: (1) What do people in various societies think is fair and equitable? (2) How do people respond when they feel they are getting far more (or far less) from their relationships than they deserve? How do they react when they observe their fellows reaping undeserved benefits—or enduring undeserved suffering? Equity theory has been applied to predict people's reactions in four major types of human interaction: exploiter/victim relationships, philanthropist/recipient relationships, business relationships, and intimate relationships. The text contains a wealth of information about people's reactions to such dissonance producing relationships.

In the next decade, the theory sparked over a thousand studies, greatly enriching people's understanding of human behavior. In fact, the term "cognitive dissonance" added a new phrase to popular language. Social psychology became the new, "hot" area. Reinforcement theory's

stultifying grip on psychology was weakened. (Try as they might, the strict behaviorists couldn't brush away the accumulating data.) The theory also began to have a critical impact on public policy. The conventional political wisdom, for example, had always claimed that you must change people's attitudes before you could hope to alter their behavior (Festinger, 1964a). Thus, in 1954, political pundits argued that in the South, people's prejudices must alter before politicians could hope to desegregate the schools. Dissonance turned that conventional wisdom on its head. Desegregate the schools, it stated, and it will take a toll on racial prejudice. A series of experiments (and the history of desegregation) has confirmed this prediction (See Festinger, 1957b; Yaryan & Festinger, 1961; Festinger & Freedman, 1964; Aronson, 1991, for a history of this era and a review of research conducted in the last 50 plus years.)

Festinger, L. (1957b). The relation between behavior and cognition. In J. S. Bruner (Ed.). *Contemporary approaches to cognition* (pp.127-150). Cambridge: Harvard University Press.
In an era in which behaviorism still dominated the field of psychology, Festinger argued that in order for cognitive research to gain its rightful place within the field, its theoretical assumptions and hypotheses should be specific and succeed in accounting for the research data. The author delineates a hypothesis pertaining to the relationship between cognition and behavior, presents implications of this hypothesis, and then discusses studies aimed at testing these implications.

Yaryan, R. B., & Festinger, L. (1961). Preparatory action and belief in

the probable occurrence of future events. *Journal of Abnormal and Social Psychology, 63,* 603-606.

A study was conducted to investigate the influence of preparing for an event on the conviction that that event will occur. Specifically, high school girls were told that 50% of them would be required to take a difficult exam. Half of them were told to memorize many facts in preparation for the exam; the others were told merely to acquaint themselves with the test material. As predicted, those who worked hard preparing for the exam were more likely to assume they would in fact have to take the exam, whereas those who were in the low effort group were less likely to think they would have to take the exam. These results support the notion that the greater the investment one makes in preparing to defend a belief or in preparing for an event, the more likely one is to be convinced that such preparation was necessary.

Festinger, L. (1964a). Behavioral support for opinion change. *Public Opinion Quarterly*, *28*, 404-417.

While it is generally accepted that one's established attitudes tend to be fairly reliable predictors of subsequent behavior, only three studies have ever addressed whether attitude *change* would predict a subsequent and analogous change in behavior. In critiquing these three studies, the author identifies an important and peculiar trend in the data: contrary to expectations, the stronger the persuasive message, the weaker the effect. That is, a change in attitudes was *not* shown to predict a change in subsequent behavior. It is suggested that if an attitude change is not reinforced through environmental or behavioral factors, it will be less likely to take root, and thus less likely to result in stable changes in behavior.

Festinger, L., & Freedman, J. L. (1964). Dissonance reduction and moral values. In P. Worchel & D. Byrne (Eds.). *Personality change* (pp. 220-243). New York: Wiley.

Festinger and Freedman argue that, while they surely account for some of the acculturation process, reward theories of learning and psychoanalytic theory do not fully explain this process. They propose that, in addition to these mechanisms, cognitive dissonance theory may help to further explain how values are internalized.

Aronson, E. (1991). Leon Festinger and the art of audacity. *Psychological Science, 2*, 213–217.
Elliot Aronson, a former graduate student of Leon Festinger, provides a heartfelt account of Festinger as a methodologist, theorist, teacher, and mentor. In this brief biography, Aronson stresses the impact that Festinger had on the field of social psychology, namely through the introduction of cognitive dissonance theory and social comparison theory.

* * *

Cognitive dissonance spawned decades of related research, from attempts at further theoretical refinement and development (Greenwald & Ronis, 1978) to applying the theory to domains as varied as the socialization of children, decision making, and color preferences (Aronson, 1991). In recent years, theorists have reviewed the progress dissonance theory has made over the last 50 years. Among the best reviews are: Brehm and Cohen (1962); Festinger and Bramel (1962), Chapanis and Chapanis (1964), Jones and Mills (1999), and Cooper (2007).

Brehm, J. W. & Cohen, A. R. (Eds.). (1962). *Explorations in cognitive dissonance*. New York: Wiley.
This volume presents a comprehensive overview of dissonance theory. The authors present several experimental tests of the theory and indicate the extent to which its relevance spans a number of areas within psychology. Dissonance theory is evaluated with respect to other established theories in the field, and specific social applications are suggested. The authors detail the applicability of dissonance theory as it relates to commitment and the modification of perception, cognition, and motivation. It is argued that dissonance theory possesses strong predictive power in the analysis of compliance, free choice, and exposure

situations.

Festinger, L. & Bramel, D. (1962). The reactions of humans to cognitive dissonance. In A. Bachrach (Ed.). *Experimental foundations of clinical psychology* (pp. 255-279). New York: Basic Books.

It is doubtful that individuals possess beliefs, opinions, and behaviors that are always in absolute accord with one another. When these beliefs, opinions, and behaviors fail to perfectly coalesce, dissonance is likely to result. The authors outline the core of dissonance theory, its strength, breadth, and predictive capabilities. To illustrate the ways in which the theory is counterintuitive to "common sense," they note the psychological effects of two unique, catastrophic historical events: an earthquake and a landslide. Of specific interest was the fact that after the earthquake, fear-evoking rumors of future calamity began to develop well outside the destruction zone. The authors also provide illustrative, hypothetical, post-decision circumstances under which dissonance will ensue. For instance, when an individual exerts tremendous effort to earn a Ph.D., only to find that the degree fails to confer the opportunities one had imagined. A study by Aronson and Mills (1959) is also cited demonstrating how people will come to favor the mundane if they have suffered for its attainment. The authors explore several other studies, elucidating the manifestation (and reduction) of dissonance in the context of overt compliance, temptation—both when it is and is not resisted—and, finally, as it relates to the Freudian concepts of projection, defense mechanisms, and rationalization.

Chapanis, N. P., & Chapanis, A. (1964). Cognitive Dissonance: Five years later. *Psychological Bulletin, 61,* 1-22.

In a critique of cognitive dissonance theory, the authors argue that initial research on this subject is flawed and inconclusive. First, they argue that the experimental methodology used in these studies is so complex and confounded that it is impossible to draw any valid conclusions. Second, they assert that the statistical analyses used when interpreting the data are faulty at best. Finally, the authors contend that the simplicity of the theory itself is a "self-defeating limitation." Festinger at the time referred to it as "a hatchet job."

Greenwald, A. G. & Ronis, D. L. (1978). Twenty years of cognitive dissonance: Case study of the evolution of a theory. *Psychological Review, 85,* 53-57.

Festinger's original imagining of cognitive dissonance theory is discussed in the context of changes that have been made to the theory over the years. One of the biggest changes to the theory is the underlying motivation for cognitive change, which was initially described by Festinger to be a desire for cognitive consistency, but was later thought (by other theorists) to be the preservation of self-esteem. The authors examine the possibility that Festinger's original theory, and not what it has morphed into over the years, was correct.

Aronson, E. (1991). Leon Festinger and the art of audacity. *Psychological Science, 2*, 213–217.

Elliot Aronson, a former graduate student of Leon Festinger, provides a heartfelt account of Festinger as a methodologist, theorist, teacher, and mentor. In this brief biography, Aronson stresses the impact that Festinger had on the field of social psychology, namely through the introduction of cognitive dissonance theory and social comparison theory.

Harmon-Jones, E., & Mills, J. (1999). *Cognitive dissonance: Progress on a pivotal theory in social psychology*. Washington, DC: American Psychological Association.

This book discusses the status of cognitive dissonance theory, 40 years after its initial introduction, and examines the controversies and recent research involving the dissonance process. The contributing authors of this text not only detail how the theory has been improved upon over the years, but also tie its principles to topics such as self-attribute accessibility, self-accountability, self-affirmation theory, motivations for dissonance reduction, and hypocrisy.

Cooper, J. (2007.) *Cognitive dissonance: 50 years of a classic theory*. New York: Sage.

This book provides a comprehensive overview of the development, evolution, and applications of Cognitive Dissonance Theory.

Specifically, it details the initial conception of this theory, the major criticisms that came in its wake, the motivational properties associated with dissonance, how the theory has changed and expanded over time, and how it is further related to culture and race.

Let us now consider some of the rich findings that arose from scholars' forays into dissonance theory.

When Prophesy Fails

One morning, Festinger and his associates came upon a fascinating item in the *Lake City Herald:*

> Prophecy from Planet Clarion call to the city: flee that flood. It will swamp us on Dec. 21, Outer space tells subordinate.

They realized that this prophecy was going to give them a chance to study first-hand one of the thousands of doomsday groups that have sprung up throughout history. Inspired by a charismatic religious leader, true believers often abandon their families, quit their jobs, and give away their homes, possessions, and money, based on the belief that the world is about to end. But then it doesn't. What happens, Festinger and his colleagues (1956) wondered, when true believers, like the Seekers, discover they were wrong . . . horribly wrong? How do they deal with the massive dissonance they must feel?

Festinger and his colleagues decided to infiltrate the Seekers. Long a student of the occult, a Chicago housewife, "Mrs. Keech" (actually Dorothy Martin), who had previously been involved with L. Ron Hubbard's Dianetics movement, warned her followers that the Apocalypse was nigh. She had received a message from the "planet" Clarion warning that at dawn on December 21, 1954, the world would end with a great flood. Only True Believers would be saved—by a fleet of spacemen, who would whisk them all to safety. The group abandoned families, quit college and jobs, and sacrificed their possessions (who needs money on Clarion?). They then traveled to Michigan to await salvation. Festinger and two colleagues immediately joined the group of wayfarers to find out what would happen when doomsday arrived and nothing happened. Based on dissonance theory, he predicted that when the saviors did not arrive, true believers would be shaken to their core. They had lost everything. What would they do? One would think that, as supposedly rational people, they would have to acknowledge that they had been wrong.

Not surprisingly, when the end came, with no spacemen in sight, the group was indeed distressed. After a period of doubt and confusion, however, "Mrs. Keech" received a message from her Spirit

Guide, congratulating the group for remaining true to the message. Their faith had saved the world from certain destruction.

> Not since the beginning of time upon this Earth, said the Guardians in their "Christmas Message" to the People of the Earth . . . has there been such a force of Good and Light as now floods this room and that which has been loosed within this room and now floods the entire Earth. (Festinger et al., 1956, p.169).

The Seekers' next action was evangelistic: they set out to preach their message of salvation to whomever would listen. Festinger and his colleagues could only conclude that the Seekers were desperately trying to increase the number of cognitions *consonant* with their beliefs (by gaining followers) in order to decrease the total amount of dissonance within their cognitive structures.

Recognizing that not all groups experiencing dissonance would seek to reduce it through proselytizing, Festinger and his team (1956) put forth five conditions under which, in similar cases, their thesis would hold true. These five conditions include the following:

> 1. A belief must be held with deep conviction and it must have some relevance for action—that is, to what the believer does or how he behaves.

> 2. The person holding the belief must have committed himself to it—that is, for the sake of his belief, he must have taken some important action that it is difficult to undo.
>
> 3. The belief must be sufficiently specific and sufficiently concerned with the real world so that events may unequivocally refute the belief.
>
> 4. The individual must acknowledge that he has been proven wrong.
>
> 5. The individual must have social support from other believers. (pp. 31-32).

Festinger, L., Riecken, H. W., & Schachter, S. (1956*). When prophecy fails: A social and psychological study of a modern group that predicted the end of the world.* Minneapolis: University of Minnesota Press.
What happens when a cult of doomsday prophets falsely predict the world's end? Posing as "believers," researchers were able to infiltrate such a group. In this illuminating paper, the authors detail the events before, during, and immediately after a prophecy failed to manifest. Rather than disband under the weight of disconfirming evidence, members engaged in a number of dissonance reducing behaviors, ultimately leading them to hold an ever-strengthened faith. The authors discuss the conditions under which people will tend to maintain or abandon deeply entrenched beliefs in the face of overwhelming disconfirming evidence.

Not surprisingly, the Festinger thesis created a stir among scholars from a wide variety of disciplines. This little study spawned a number of historical, sociological and psychological, religious, and literary studies, all attempting to explain the revival, growth, and success of messianic and millennial movements throughout Western history.

In the flood of research that followed the *Prophecy Fails* monograph, scholars discovered that people may respond in any number of ways to disconfirmed prophecies. People are very skillful at defending their half-baked beliefs. The new millennium gave scholars a fine venue for discovering the multitude of ways millennials can reduce dissonance when their dire warnings fail to materialize (see Stone & Farer, 2000, for an excellent compendium.) After the fall, true believers can claim that they were relying on a defective calendar (the Gregorian instead of, say, the earlier Julian calendar) so that the end really is near; they were just wrong about the date. They can claim that their translation of ancient Mayan writings or the Holy Bible was flawed, that by their sacrifices they had saved the world from destruction, that this prophecy was a test and they passed with flying colors, and the like. For one especially intriguing study see Hardyck [Piliavin] and Braden (1962), who found that after disconfirmation, the faithful reduced dissonance in yet another way: they concluded that the ill-fated retreat had strengthened group ties and increased personal faith.

Hardyck, J. A., & Braden, M. (1962). Prophecy fails again: A report of a failure to replicate. *The Journal of Abnormal and Social Psychology, 65,* 136-141.

The authors studied a group of 135 Pentecostal Christians who prophesized a nuclear disaster. Members of the True Word3

constructed fallout shelters and moved in, awaiting the destruction of the world. When they emerged after 42 days, they discovered they were wrong—no disaster had occurred. The faithful reduced dissonance in a novel way—they concluded that the retreat had been a success: it had strengthened group ties and increased personal faith.

Stone, J. R. & Farer, T. J. (2000). *Expecting Armageddon: Essential readings in failed prophecy.* New York: Routledge.
A fine collection of readings about the factors that motivate millennialists and religious movements to predict the end of the world as we know it, and how such groups recover from the inevitable failed prophecies. A fascinating and well-researched work about failed prophecies and millennialism. It includes psychological and sociological perspectives.

Insufficient Justification

In 1963, Elliot Aronson and J. Merrill Carlsmith observed that if people receive too much reward (or punishment) for doing something (or abstaining from doing something) it may be counterproductive. In line with dissonance theory, they predicted that if people were offered a trivial reward to sacrifice something they liked *and still gave it up,* they would experience dissonance. "Why did I agree to give up, say, chocolate, when I love it so . . . and for a measly ten cents?" Conversely, if the same trivial reward were given to persuade people to do something they hated, they should also experience dissonance. "Clean toilets, for a measly $1.00 an hour? Why would I do that?" One way such people could resolve the cognitive dissonance they experienced would be to

convince themselves that they were acting from their own free will. An overpayment, of course, should have the opposite effect. No need to convince themselves that they acted from their own free will. Any fool would act that way.

Aronson, E., & Carlsmith, J. M. (1963). Effect of the severity of threat on the devaluation of forbidden behavior. *Journal of Abnormal and Social Psychology, 66,* 584-588.

When people give up something they like to do, (out of fear of punishment) they may experience dissonance. Why not do something you like? An effective way of reducing dissonance is by convincing yourself that you didn't want to do the thing anyway. The greater the threat of punishment the less the dissonance—since a severe threat is consonant with ceasing to perform the action. Thus, the milder the threat, the greater will be a person's tendency to derogate the action. In a laboratory experiment, 22 preschool children stopped playing with a desired toy in the face of either a mild or severe threat of punishment. The mild threat led to more derogation of the toy than did the severe threat.

In 1959, Festinger and Carlsmith conducted a now classic experiment. In an initial session, college students were asked to spend an hour performing an excruciatingly monotonous task (i.e., repeatedly filling and emptying a tray with 12 spools or turning 48 square pegs in a board clockwise.) But then — when the experiment was presumably over, the experimenter, with a great show of concern and a wringing of hands, confessed he was in trouble. His assistant had failed to show up. Would the subjects do him a favor? Would they pose as his assistant, show the next subject the task, and assure him or her that task was actually a lot

of fun? All agreed. Now, assisting the experimenter was bound to cause dissonance. The "assistants" know they are lying: the task is, in fact, painfully boring. Yet, all the "good Samaritans" agreed to lie. How much the "assistants" were paid for this lie varied. Half of them were given $1 for the favor, while the other half received $20. As predicted, when asked later what they actually thought about the task, those confederates paid a mere $1 claimed the task to be far more enjoyable than did those paid $20. The $1 group had reduced dissonance by convincing themselves they were not really lying—the task was sort of fun. Their $20 peers, who had a pretty good reason to lie ($20 in the early '60's), had little need to reduce dissonance. (Similar results are to be found in Festinger, 1961).

Festinger, L. (1961). The psychological effects of insufficient rewards. *American Psychologist*, *16*, 1-11.
Here Festinger details several studies pertaining to cognitive dissonance theory. The traditional understanding of the function of reward is critiqued. Contrary to intuition, in certain conditions the absence of reward (or providing inadequate reward) succeeds in increasing preference. It is suggested that cognitive dissonance theory accounts for these seemingly paradoxical findings more satisfactorily than can a traditional understanding of the role of reward. He concludes that the absence of reward or insufficient reward can result in an increase in preference for that which one has suffered most to attain.

Festinger, L. & Carlsmith, J. M. (1959). Cognitive consequences of forced compliance. *The Journal of Abnormal and Social Psychology*, *58*, 203-211.

In this article, the authors propose and test two principles from which cognitive dissonance can be predicted. The first of these principles states that when an individual is persuaded to behave—whether by word or deed—in a manner that is in conflict with his personally held convictions, he will attempt to alter his convictions so as to bring them in accord with his behavior. The second principle predicts that, while the application of *some* pressure will result in a revision of personally held convictions, if that pressure exceeds what is minimally necessary to elicit change, an individual will be *less* likely to modify his personal convictions. These assumptions were tested in a clever experiment. Participants engaged in a boring task, after which they were paid either a large or small sum of money to tell someone that the task was actually quite fascinating and enjoyable. Those who received the smaller sum of money came to perceive the task as more interesting. Conversely, those who received the larger sum of money perceived the task as less interesting. The results of this study provide robust support for cognitive dissonance theory.

In a second study with pre-school children, Aronson and Carlsmith (1963) secured additional evidence that their thesis was right. In this study, children were asked to rate a collection of toys. Then a stern "teacher" warned the children not to pay with the most attractive of the toys. Sometimes, the teacher threatened children with mild punishment if they dared to touch their favorite toy; sometimes his threats were severe. The authors found that p*rovided they could persuade children to avoid the forbidden toy*, serious threats were less effective than mild ones in teaching children that the desirable toy was taboo. An excessive threat was overkill: children would attribute their actions to the threat, not to their own free will. And it is the belief that children are abstaining

from “naughty behavior” because they *want to,* is what parents and teachers wish to instill in children. They want them to abstain because, say, it is moral and right to do so, because self-control is admirable, because it is fun to abstain, and because they really don’t want to do the forbidden anyway.

Aronson, E., & Carlsmith, J. M. (1963). Effect of the severity of threat on the devaluation of forbidden behavior. *Journal of Abnormal and Social Psychology, 66,* 584-588.

When people give up something they like to do, (out of fear of punishment) they may experience dissonance. Why not do something you like? An effective way of reducing dissonance is by convincing yourself that you didn’t want to do the thing anyway. The greater the threat of punishment the less the dissonance—since a severe threat is consonant with ceasing to perform the action. Thus, the milder the threat, the greater will be a person's tendency to derogate the action. In a laboratory experiment, 22 preschool children stopped playing with a desired toy in the face of either a mild or severe threat of punishment. The mild threat led to more derogation of the toy than did the severe threat.

The research into such justifications turned out to be one of the most important findings sparked by dissonance theory—probably because its predictions were counter-intuitive and clashed so violently with the conventional wisdom of Skinner’s behavioral theory. Its tenets were adopted by educators (see Abelson, Leeper, & Zanna, 1973), people in organizations (Pfeffer & Lawler, 1980), in criminal justice settings (Meares, Kahan, & Katyal, 2004), in private and military institutions, in devising persuasive communications (Allyn [Piliavin] & Festinger, 1961;

Walster [Hatfield] & Festinger, 1962; Festinger & Maccoby, 1964) and the like (Festinger & Aronson, 1960). Twenty years later, Lydall, Gilmour, and Dwyer (2010), in an analogue of dissonance theory, would demonstrate that even in rats, the harder they work the more they will value a food reward.

Festinger, L., & Aronson, E. (1960). Arousal and reduction of dissonance in social contexts. In D. Cartwright and A. Zander (Eds.). *Group dynamics* (pp. 125-136). New York, NY: Harper & Row.
In this article, the authors outline a theory of cognitive dissonance and discuss contexts in which dissonance is commonly manifested. These circumstances include decision making, temptation, effort expenditure, fiat accompli outcomes, faulty anticipation of a social environment, disagreement with others, and forced public compliance. The authors then propose two unique conditions under which dissonance may be reduced through group interaction. In one condition, one may reduce dissonance by acquiring the support of others who believe that which the individual wishes to believe. In another condition, one may convince others to also believe that which he or she wishes to believe. In either of these conditions, social support serves to undergird beliefs.

Allyn, J., & Festinger, L. (1961). The effectiveness of unanticipated persuasive communications. *The Journal of Abnormal and Social Psychology*, *62*, 35-40.
How does being primed or unprimed to hear a persuasive message influence the likelihood of accepting or rejecting such a message? To investigate this question, a sample of 87 high school students who supported reduced restrictions for teen driving were presented with a speaker arguing for stricter regulations for teen drivers. Prior to listening to the speaker, students were assigned to one of two group conditions: One group was informed of the speaker's position and the nature of the speech. They were instructed to assess only the speaker's opinions. The other group was not made aware of the speaker's position nor the nature of the speech in advance. Furthermore, the second group was instructed

to assess the speaker's personality, rather than his opinions. The researchers found that those who were in the unprimed condition were more susceptible to the persuasive message than were those assigned to the primed condition. The authors also found that those students who held the most extreme views beforehand tended to experience the greatest degree of attitude change.

Hatfield, E. & Festinger, L. (1962). The effectiveness of "overheard" persuasive communications. *Journal of Abnormal and Social Psychology, 65*, 395-402.

What factors contribute to the persuasiveness of overheard communication? In this paper the authors present two experiments designed to address this question. The first of these studies involved two conditions: In one condition, participants overheard a persuasive message. That is, participants did not think that the speakers were aware that the participants were listening. In another condition, participants were informed that the speakers were aware of the fact that they were listening. Study results indicated that those who believed they had merely overheard the persuasive message experienced greater attitude change than did their peers. However, critics might argue that all of the variance could be attributed to those participants who found the persuasive message most personally relevant (e.g., smokers who overheard the message about smoking). A second study was conducted in order to substantiate the findings from the first study. Just as in the first study, the results of the second indicated that attitude change was most notable in those who deemed the overheard message most personally relevant.

Festinger, L. & Maccoby, N. (1964). On resistance to persuasive commun-ications. *The Journal of Abnormal and Social Psychology*, *68*, 359-366.

It was hypothesized that a persuasive communication will be more effective when the targets are to some extent distracted. Although this assertion may seem counterintuitive on its face, the authors argue that when distracted, an individual is unable to effectively mount a counterargument. The authors present three experiments aimed at testing this assumption. Students from three different universities were randomly assigned to one of two conditions. In one condition, students were presented with a film in which the speaker argued strongly against

college fraternities. In the other condition, although the audio portion of the film (that is, a speaker arguing against college fraternities) was the same as in the first condition, the video aspect of the film was replaced with a highly amusing distraction video. Thus, both conditions were presented with audio of the same persuasive message, while one condition saw video of the speaker and the other saw a message-irrelevant distraction video. The results of the study generally supported the contention that those who are distracted are more susceptible to a persuasive message than are those who are fully attentive.

Abelson, R. P., Leeper, M. R., & Zanna, M. P. (1973). Attentional mechanisms in children's devaluation of a forbidden activity in a forced-compliance situation. *Journal of Personality and Social Psychology, 28,* 335-359.

A study with kindergarten children confirmed the earlier findings of Aronson & Carlsmith (1963), demonstrating that severe threats are less effective than mild threats in persuading children that taboo toys are undesirable.

Pfeffer, J. and Lawler, J. (1980). Effects of job alternatives, external rewards, and behavioral commitment on attitude toward the organization: A field test of the insufficient justification paradigm. *Administrative Science Quarterly, 25,* 38-56.

A study of 4,058 college and university and faculty members studied the effects of salary, the availability of job alternatives, tenure, and the length of time in the organization on satisfaction with the organization and on intention to leave. They found some support for the earlier research of Aronson and Carlsmith (1963). Specifically for those not committed to the organization, salary was critically important in shaping satisfaction. For those not so committed, no such relationship existed.

Meares, T. L., Kahan, D. M. & Katyal, N. (2004). Updating the study of punishment. *Stanford Law Review, 56,* 1171-1209.

For much of the 19th and 20th century, criminal law was at the forefront of interdisciplinary studies in law. Criminologists borrowed heavily from psychology, sociology, and philosophy in an attempt to understand why people act the way they do and in deciding how the courts should punish offenders. The authors argue that criminal doctrines should be updated,

incorporating recent psychological discoveries as to the value of severe versus mild punishments in promoting criminals acceptance of the authorities' decisions and in shaping criminals' feeling that authorities are simply enforcing the law, that their punishment is fair, and thus in the future they must comply with legal statutes.

Lydall, E. S., Gilmour, G., & Dwyer, D. M. (2010). Rats place greater value on rewards produced by high effort: an animal analogue of the "effort justification" effect. *Journal of Experimental Social Psychology, 46,* 1134-1137.

The authors attempted to determine whether the Festinger and Carlsmith (1959) research, demonstrating that people come to prefer things when they work hard for them, could be demonstrated in rats. They found that, indeed, rats placed more value on a (preferred) sucrose reward when it followed high effort than when the same reward followed low effort.

Blaming the Victim

In his *Poor Richard's Almanac,* Benjamin Franklin observed that if you wanted to turn an enemy into a friend, you should persuade him to do a favor for you. Then he would find it hard not to think of you with affection. The reverse is also true: people who hurt us often come to despise us. Why would this be?

Most people think of themselves as good people, who would not harm another person without reason. What happens when they find themselves doing something cruel or nasty to another person? This should cause cognitive dissonance. In George Orwell's *1984,* "doublethink" might be common, but in real life, believing: "I am a good person" and "I am cruel and nasty" are bound to induce distress.

Harmdoers can reduce their anxiety in a wide variety of ways: uneasy transgressors may find relief by confessing their sins, in self-criticism, by apologizing and making reparation to their victim, or in promising to modify their future behavior. However, such responses aren't entirely satisfying. Cynics, such as the 18th century social commentator, "Junius," have acidly observed that even "a death bed repentance seldom reaches to restitution." For a review of the factors that shape when people will or will not reduce dissonance by attempting to make things right with the victim, see Walster [Hatfield], Walster, and Berscheid (1978). One common way people resolve the distress is to convince themselves that the injured person deserved what he got. Blaming the victim is quite common.

That harmdoers will often derogate their victims has been demonstrated by a number of researchers. In a typical experiment, Davis and Jones (1960) found that college students who were recruited to insult another student (as part of a research project) generally ended up by convincing themselves that the insulted person deserved to be ridiculed. Sykes and Matza (1957) found that juvenile delinquents often defend their bullying of others by arguing that their victims are really homosexuals, bums, or possess other traits that make them deserving of

punishment. In tormenting others, then, the delinquents can claim to be the restorers of justice rather than wrongdoers. In a plethora of studies it has been demonstrated that harmdoers tend to deny responsibility for their acts, minimize the victim's suffering, and the like (See Walster [Hatfield], et al. 1978 for a review of this research.)

Davis, K. E. & Jones, E. E. (1960). Changes in interpersonal perception as a means of reducing cognitive dissonance. *Journal of Abnormal and Social Psychology, 61,* 402-430.
Participants (who thought they were assisting the experimenter) were asked to deliver a scathing personality assessment to a fellow student. Half of the confederates expected to meet the victim later, when the nature of the situation could be explained and rectified; the other half were told they would not be given such an opportunity. It was predicted that there would be greater cognitive dissonance when the confederates were given a choice as to whether they would aid the experimenter by abusing the subject and when there would be no opportunity to meet the individual and rectify matters. This prediction was confirmed. This study is often cited as evidence that if actual restoration is impossible, harmdoers will tend to justify injuring others.

Sykes, G. M. & Matza, D. (1957). Techniques of neutralization: A theory of delinquency. *American Sociological Review, 22,* 664-670.
Why do good men violate the laws in which they believe? In a brilliant and comprehensive analysis, the authors propose that, in general, delinquency is based on self-serving justifications—justifications that are seen as valid by the delinquent but not by society at large or by the legal system. The self-justifications include such "tricks" as denial of responsibility for wrongdoing, the denial of injury, an insistence that the victim got what he deserved, a condemnation of critics, and an appeal to higher loyalties.

Walster [Hatfield], E., Walster, G. W., & Berscheid, E. (1978), *Equity: Theory and research.* Boston: Allyn, & Bacon.

Equity theory is designed to answer two questions: (1) What do people in various societies think is fair and equitable? (2) How do people respond when they feel they are getting far more (or far less) from their relationships than they feel they deserve? How do they react when they observe their fellows reaping undeserved benefits—or enduring undeserved suffering. Equity theory has been applied to predict people's reactions in four major types of human interaction: exploiter/victim relationships, philanthropist/recipient relationships, business relationships, and intimate relationships. The text contains a wealth of information about people's reactions to such dissonance producing relationships.

Conflict, Decision, and Dissonance

In *Conflict, Decision, and Dissonance,* Festinger (1964b) attempted to spell out in detail the sequential process of decision-making. He asked: What goes on, psychologically, during the period before and immediately after a decision is made? What is a person's reaction some time after the decision is made? In a series of ingenious studies, he demonstrated that it may take longer to make a decision when one is plagued with thinking about what might have been (Hatfield & Festinger, 1964), that even the anticipation of dissonance may shape our pre-decision behavior (Braden & Hatfield, 1964), and that when forced to decide between two truly horrible alternatives (Hatfield, 1964), immediately after the decision (as reality hits) people tend to regret their choice—dissonance reduction is not to be had. With sufficient time,

however, people can begin to reconcile themselves to the horrors they must face (Festinger & Hatfield, 1964).

Braden, M. & Hatfield, E. (1964). The effect of anticipated dissonance on pre-decision behavior. In L. Festinger (Ed.), *Conflict, decision, and dissonance* (pp. 145-151). Stanford, CA: Stanford Press

The authors note that dissonance theorists have devoted little attention to what goes on in a person's mind in the pre-decision period. They hypothesized that before a decision, people are wondering if even better choices are available, how they'll feel after the decision, and the like. In this study they proposed that people will resist making a decision if they anticipate experiencing dissonance once their choice is made. If a person does not anticipate experiencing dissonance as a consequence of their choice, however, they will be far more inclined to commit themselves to a decision. The study found strong support for this contention.

Festinger , L. (1964b). *Conflict, decision, and dissonance*. Stanford, CA: Stanford Press.

This book focuses on the human decision making process. More specifically, what happens before, during, and after we make a decision. Cognitive dissonance theory is discussed in detail, and several supporting studies are reviewed in order to shed light on the various components of this theory. Additionally, several studies are included to illustrate where the theory may be lacking, how it should be modified, and in what contexts further data is required.

Festinger, L. & Hatfield, E. (1964). Post-decision regret and decision reversal. In L. Festinger (Ed.), *Conflict, decision, and dissonance*. (pp. 97-112). Stanford, CA: Stanford Press

In this chapter, the authors attempted to gain a better understanding of pre- to post-decision psychological processes and the ways in which these processes influence decision reversal. Sixty-eight women were asked to participate in (mock) market research as to preferences in hairstyles. They were asked to choose between hairstyles in either "prior decision" or "no prior-decision" conditions. It was hypothesized that immediately after choosing between two imperfect alternatives (e.g., ugly hair styles), individuals will tend to find salient the desirable aspects of the rejected alternative and the undesirable aspects of the accepted

alternative, thus leading them to engage in dissonance reducing strategies.

Hatfield, E. (1964). The temporal sequence of post-decision processes. In L. Festinger (Ed.), *Conflict, decision, and dissonance* (pp. 112-128). Stanford, CA: Stanford Press

The authors conducted an experiment designed to test two predictions central to dissonance theory. First, it was hypothesized that if a soldier were forced to make a decision between two truly horrifying alternatives (say, between a dangerous job and an incredibly boring one), the minute the decision is made (and the consequences of the choice become salient), he would tend to feel intense regret. Then, the process of dissonance reduction would commence. The researchers attempted to assess how long the process of post-decision dissonance reduction would take by interviewing soldiers immediately after the choice, four minutes later, 15 minutes later, or a full 90 minutes later. While the results of this study generally supported the predictions, there was one surprising result: There was no indication of dissonance reduction among those in the 90-minute condition. It was therefore suggested that further investigation be conducted in order to better understand the factors contributing to the persistence of dissonance.

At the end of his stay at Stanford, Festinger and his first wife divorced.

New School For Social Research

(1968-1989)

Despite all this recognition, in 1964 Festinger decided to abandon the field of social psychology. It was not that there were no important social psychological problems left to solve, or that no fascinating questions remained to be answered. He attributed his decision to:

> . . . a conviction that had been growing in me at the time that I, personally, was in a rut and needed an injection of intellectual stimulation from new sources to continue to be productive (Festinger, 1980a, p. 248).

Festinger, L. (1980a) Looking backward. In L. Festinger (Ed.), *Retrospections on social psychology* (pp. 236–254). New York: Oxford University Press.

Festinger offers personal reminiscences of the early days of social psychology, the changes in the field that have occurred in his lifetime, and ideas as to where the field ought to go. He focuses primarily on work inspired by the Research Center for Group Dynamics. In describing the state of social psychology, Festinger gives a personal account of how he himself became immersed in the field. He also discusses the work of Kurt Lewin, his mentor, and how it became a new, practical approach to the study of social psychology. Additionally, Festinger details the various problems that researchers faced in this field, including its initial lack of focus on the individual, its incompatibility with behaviorism, and its violation of ethical principles. Festinger eventually left the field of social psychology, a decision that he attributes to feelings of being "in a rut."

With this decision, Festinger came full circle. He had never really felt comfortable outside of New York City, so in 1968 he returned to his native New York, to the then named New School for Social Research (now simply The New School), where he had been offered the Else and Hans Staudinger Professorship. In that same year, he was married for the second time, toTrudy Bradley, a professor of social work at New York University.

The Visual System and Perception

Restless as ever, during Festinger's last days at Stanford, he had turned his attention to the visual system and perception. He waded into studying a variety of problems related to the conscious experience of perception, the role for perception of eye movements, explorations into how the eye moves, and on the neurophysiological coding for the perception of color. His research designs showed the same audacious creativity that had marked his research in social psychology.

The Afferent versus the Efferent System

He asked: What happens if your vision and touch give you radically different messages? Which system will take precedence? How long would adaptation take; how long before you started seeing and feeling the same thing—if you ever did? Delving into historical research, he soon came upon a "trick" that would allow him to answer such questions. Early phenomenologists, such as the German Wolfgang Köhler (1964), had crafted a pair of wedge prism spectacles that appeared almost magical; they made flat lines appear curved and curved lines to appear flat. When Köhler persuaded subjects to wear the distorting lenses, people at first had a great deal of trouble adapting to their skewed vision. While they would *see*, say, a table as curved, they

could yet feel it was flat. Naturally they found this very disorienting. But in a few weeks they adapted. The visual system was brought into sync with the reality of touch. They began to both see and feel the table as flat (or feel it as curved), as the case may be.

> What happened when they took the glasses off?
>
> After ten days of continuously wearing the spectacles, all objects had straightened out and were no longer distorted. The subject then removed the spectacles. Immediately impressions of curvature, distortions, and apparent movement set in. The subject complained: "What I experienced after I took off the spectacles was much worse than what I experienced when I first started wearing them. I felt as if I were drunk." Aftereffects continued for four days (p. 34).

Köhler, I. (1964). The formation and transformation of the perceptual world. (Translated by H. Fiss.). *Psychological Issues, 3,* 1-173.
This book describes a series of studies conducted over a 34 year period that illustrate how objects appear initially, and how they appear when light entering the eye is altered by various optical attachments (i.e., a special set of spectacles). Results demonstrated that when the perceptual process is altered by the use of spectacles, the retina works in one way with the eye in one position and in a completely different way with the eye in a different position. This finding is at odds with traditional theories of retina imagery.

Festinger speculated that perception should be profoundly shaped by reality. If for example, you were a wood-worker, you should start to see wood as it was—flat. In a host of studies, he set out to

learn about cognition, the visual system, the perception of color, and what happens when vision and touch provide contradictory information.

In a historical review, Festinger observed that scholars had long argued about whether conscious perception is primarily influenced by instructions from the brain to the body (efference) or by feedback from the body to the brain (afference) (Festinger & Canon, 1965). In a series of studies, Festinger compared people who were forced to learn a new association between afferent-efferent messages with those who were not. The studies were consistent with the theoretical position that visual perception is influenced by afference, efferent readiness, and efference (See Festinger & Cannon, 1965; Coren & Festinger, 1967; Festinger, et al., 1967, 1968; and 1974).

Festinger, L., Canon, L. K. (1965). Information about spatial location based on knowledge about efference. *Psychological Review, 72,* 373-384.
The authors conducted an experiment in order to determine whether humans receive “outflow” information from monitoring nerve impulses that are located in motor pathways. Results of this study demonstrated that the presence of outflow information influences accuracy when attempting to locate an object in space.

Coren, S., & Festinger, L. (1967). Alternative view of the "Gibson normalization effect." *Perception & Psychophysics, 2*, 621–626.
Two studies were conducted to test the validity of the Gibson normalization effect, which asserts that staring at a curved line for a

prolonged period of time will make the line appear less curved. The authors concluded that curves appear to be more curved than they actually are, and that after staring at a curve for a short period of time there is a decrease in this illusion. Based on these findings, the authors argued that the Gibson normalization effect is actually a decrease in an already existing distortion, rather than a distortion in and of itself.

Festinger, L., Burnham, C. A., Ono, H., & Bamber, D. (1967). Efference and the conscious experience of perception. *Journal of Experimental Psychology Monograph, 74,* 1-36.

Visual experience depends on several kinds of knowledge, which are not always all available or coordinated. Subjects were asked to wear prism spectacles that caused straight lines to appear curved. Then they were asked to make arm movements corresponding to the objective contour of the lines while viewing the lines through the prism. Four experiments were conducted to assess the relationship between vision and arm movements. In these experiments, participants who were required to learn new afferent-efferent associations were compared against a group of control participants. Results demonstrated that for those participants in the experimental condition, there was a significant change in the visual perception of curvature. The authors argue that these results are consistent with previous work asserting that efference activated by visual input assists in determining the visual perception of contour.

Festinger, L., White, C. W., & Allyn, M. R. (1968). Eye movements and decrement in the Müller-Lyer illusion. *Perception and Psychophysics, 3,* 376-382.

Festinger and his colleagues confirm the findings of previous investigators that the magnitude of the Muller-Lyer illusion diminishes with prolonged observation of the test figure, but only if gross eye movements are allowed. To explain this phenomenon, they advance the hypothesis that "the perception of length is determined by efferent readiness activated by the visual input."

Festinger, L., & Easton, A. M. (1974). Inferences about the efferent system based on a perceptual illusion produced by eye movements. *Psychological Review, 81,* 44-58.

Festinger argues that visual experience is not at all a simple and straightforward process. The theory suggests that perception is learned and consists of sets of acquired responses (such as eye movements) to visual input. The incoming stimulation arouses a learned program that controls a pattern of eye movements. Perception does not require that the eye movements *actually* be executed, and the activation of the pre-programed readiness to respond is sufficient to determine the conscious experience of perception.

Sedgwick, H. A., & Festinger, L. (1976). Eye movements, efference, and visual perception. In R. A. Monty & J. W. Senders (Eds.). *Eye movement and psychological processes* (pp. 221-230). New York: Wiley.
In studying a type of misperception found in visual tracking, the authors measured observers' eye movements and perception while observers attended to stimuli (dynamic points of light in a dark room). The authors found that smooth-pursuit eye movement is generally quite poor and concluded that the information in the perceptual system arises from monitoring efferent commands to the eyes, and thus is not generated from proprioceptive information originating from extraocular muscles. The authors caution that much more work is needed before their interpretations can be substantiated.

The Impact of Attention, Eye Movements, and the Like on Perception

Later, Festinger expanded his investigation to the impact of attention, eye movements, and suchlike, on perception (Festinger, et al., 1970; Festinger, 1971 and 1973).

Festinger, L. Coren, S., & Rivers, G. (1970). The effect of attention on brightness contrast and assimilation. *American Journal of Psychology, 83,* 189-207.
Three studies were conducted in order to determine the conditions under which brightness assimilation and brightness contrast occur. Brightness assimilation was shown to occur only when the gray portion of a visual display was not the focus of attention. When focus was centered on this gray portion, however, brightness contrast occurred.

Festinger, L. (1971). Eye movements and perception. In P. Bach-Y-Rita, C. C. Collins, & Hyde, J. E. (Eds.). *The control of eye movements* (pp. 259-273). New York: Academic Press.
In an attempt to summarize existing research on how eye movements are related to what a person sees, this chapter addresses how eye movements are related to both visual system input and how this visual input is used.

Brussel, E. & Festinger, L. (1973). The Gelb effect: brightness contrast plus attention. *American Journal of Psychology, 86,* 225-235.
In this paper, the authors provide further support for Festinger, Coren, and Rivers' theory of brightness assimilation. In particular, they tested and found confirming evidence for the prediction that inserting a spot of lower brightness would result in a darkening of the disc.

Miller, J., & Festinger, L. (1977). Impact of oculomotor retraining on the visual perception of curvature. *Journal of Experimental Psychology: Human Perception and Performance, 3,* 187-200.
In this study participants were instructed to view a computer-generated display of concave-up curved lines, which were either displayed horizontally or vertically so that in order to shift attention from one point to another on the curve the eye would have to move in a strictly horizontal or vertical direction, respectively. Eye movements in both of these conditions were reprogrammed to eliminate the vertical movements of the vectors that were present at the start of the experiment. Results demonstrated that a significant amount of perceptual adaptation occurred in the horizontal condition, while none was obtained in the vertical condition. Taken together, these results do not support previous theories regarding perceptual adaptations to distorted curvatures.

Festinger, L. & Holtzman, j. D. (1978). Retinal image smear as a source of information about magnitude of eye movement. *Journal of Experimental Psychology: Human Perception and Performance, 4,* 573-585.
Four experiments were conducted in order to determine whether the retinal image smearing that occurs when looking from one object to

the next provides information about the magnitude of the eye movement to the perceptual system. Results demonstrated participants with greatly reduced or eliminated smearing, in comparison to participants with normal smearing, experienced greater uncertainty in terms of the information available to their perceptual system and tended to perceive smaller amounts of movement than had actually occurred.

Holtzman, J. D., Sedgwick, H. A., & Festinger, L. (1978). Interaction of perceptually monitored and unmonitored efferent commands for smooth pursuit eye movements. *Vision Research, 18*, 1545–1555.
Participants were instructed to look at a spot that was moving horizontally on a screen. Shortly after attending to this spot, a second spot, which was moving at an angle to the first, appeared. Interestingly, the angle of the second spot, which participants were not fully focused on, was drastically misperceived. After a short time, participants were asked to shift their attention to the second spot. Results from the subsequent eye movements support a differentiation between the central motor command and the motor command that reaches the eye.

How Vision Affects the Perception of Movement

Hochberg, J., & Festinger, L. (1979). Is there curvature adaptation not attributable to purely intravisual phenomena. *Behavioral and Brain Sciences, 2*, 71–71.
This study entailed a partial replication of Held and Rekosh's (1963) experiment on the relationship between prism-induced changes in visuomotor feedback and the perception of straightness. The authors provide a brief overview of the theory and original experiment on sensorimotor phenomena in perception, followed by their replication, which used base-up and base-down prism orientations in addition to the base-left and base-right that were used in the original study. Interestingly, their replication using the base-left and base-right orientations was non-significant. The authors concluded that further research is needed on prism orientation and attentional loads.

Festinger, L. (1972). Perceiving the path of a moving object. In *Proceedings of the XXth International Congress of Psychology.* Tokyo, Japan. Science Council of Japan, University of Tokyo Press, pp. 126-134.
Festinger presents a paper summarizing his research on the ways in which people process movement of a target. He concluded that that the saccadic control system is receiving continuous input during this process.

Komoda, M. K., Festinger, L. Phillips, L. J., Duckman, R. H., & Young, R. A. (1973). Some observations concerning saccadic eye movements. *Vision Research, 13,* 1009-1020.
Participants' eye movements were recorded as they observed a target on a screen, which was moved twice. Results indicated that participants did not always observe the target's initial movement, and instead sometimes only attended to the target's final position. Additionally, when participants did observe both target movements, the duration of the second vector was shorter than that of the first. When participants only observed the target's final position, the duration of the vector was shorter when the target's final position was in the same direction as the initial movement. The authors concluded that the saccadic control system is receiving continuous input during this process.

Festinger, L. Sedgwick, H. A. & Holtzman, J. D. (1976). Visual perception during smooth pursuit eye movements. *Vision Research, 16,* 1377-1386.
While tracking visual-perception during smooth pursuit eye-movements, the authors concluded that during smooth pursuit the perceptual system assumes a relatively low speed. Furthermore, the authors argue that the stimulation of extraocular muscles used in smooth tracking is largely peripheral in the sense that it occurs outside of the efferent command process.

Komoda, M. K., Festinger, L., & Sherry, J. (1977). The accuracy of two-dimensional saccades in the absence of continuing retinal stimulation. *Vision Research, 17,* 1231-1232.
Participants for this study were shown a fixation point on a computer screen, followed by three randomly placed targets. After

these target images were removed from the screen, participants were then asked to visually identify the points at which these targets appeared in sequential order. Their visual attention was measured using an eye-tracker device, which measured the vectors between targets. The authors concluded that participants were able to visually identify where the targets had initially been located, even in their absence – though their accuracy did decrease with each vector.

The Process of Color Perception

His final work on perception concerned the process of color perception (Festinger, 1970; Festinger, et al, 1971).

Festinger, L. (1970). Neurophysiological coding for the perception of color. *Perception and its Disorders, 158,* 26-34.
Early theorists had suggested that information is transmitted through afferent neural pathways by means of temporal variation of the frequency of cell firing, that is, by a kind of neuronal Morse code. This proposal had been ignored for the most part and did not influence any research. In this review, Festinger reviews, very briefly, the major facts known about subjective color. He then states, in some detail, the specific hypotheses about a neuronal Morse code that, if true, would explain this phenomenon. He also presents some data relevant to these hypotheses and points out some problems.

Festinger, L., Allyn, M. R., & White, C. W. (1971). The perception of color with achromatic stimulation. *Vision Research, 11,* 591-612.

In a series of experiments, Festinger and colleagues demonstrated that flicker colors can be produced by changing the intensity of a fixed light source. If the intensity changes are similar to those produced by a Benham Top, then lateral inhibitory effects from a flickering background must be present in order to create these colors. In the same way the flicker colors were produced, patterns of temporal intensity changes were discovered with a constant background.

Finally, in 1979, Festinger closed his laboratory, citing his dissatisfaction with working "on narrower and narrower technical problems" concerning the workings of the eye (Festinger, 1983, p. ix.) Writing in 1983, Festinger expressed frustration with what he and his field had accomplished.

> Forty years in my own life seems like a long time to me and while some things have been learned about human beings and human behavior during this time, progress has not been rapid enough; nor has the new knowledge been impressive enough. And even worse, from a broader point of view we do not seem to have been working on many of the important problems (p. ix).

Festinger, L. (1983). *The human legacy*. New York: Columbia University Press.

Festinger's book is divided into two parts. In Part I, titled "The narrow path of evolution," he reviews what archeologists have learned about the evolution of our earliest ancestors by examining fossil bones, stone tools, and other artifacts. In Part II, titled "The march to 'civilization,'" he studies the development of human society over the last 20,000 to 30,000 years. Relying on known facts, he attempted to explain the structure of society—studying such things as the impact of social organization and a sedentary lifestyle on size of population and the subsequent advances in trade, food production, and technology. He provides insights into the development of religious belief systems, war and fortifications, and human slavery. He discusses the role of play and games in society. He ends by offering some reflections on the present and the future.

The Human Legacy

Disillusioned he might be, but Festinger could not stop his sleuthing. He began meeting with Stephen Jay Gould and Sherry

Washburn to discuss ideas and archeology. He started working with Israeli and French specialists, such as Ofer Bar-Yosef, Arthur Jelinek, and Jacques Tixier, visiting archaeological digs to find out what he could from archeological evidence about the structure of primitive society and the nature of man. Not surprisingly, he managed to excite some of his fellow social psychologists, such as Michael Gazzaniga, Julian Hochberg, George Miller, Serge Moscovici, and David Premack, about the project and they all attended anthropology seminars together. His fresh investigations eventually culminated in *The Human Legacy,* which speculated about how humankind evolved and developed complex societies.

He began with a series of questions. How did humans evolve? When did our present way of life begin? Man has flourished over all the planet; he has no natural habitat. What are the consequences of this? Why did humankind spend so much time and energy on aesthetic activities: decoration, color, visual art, music, dance, and poetry? Why was it so addicted to games? In the end, relying on known facts and data, and examining primitive tools and other artifacts, he attempted to explain why human groups settled down to live in one place, why they changed from depending on wild plants and animals to developing

agriculture. How did societal structures evolve? Why did religious belief systems evolve? What prompted the division of labor in society? What functions have war and slavery served in our evolutionary history (See Festinger, 1981, 1983, and 1986)?

Festinger, L. (1981). Human nature and human competence. *Social Research: An International Quarterly, 48*, 306–321.

In a witty article, Festinger critiques sociobiological theory—pointing out that with sufficient creativity, people can claim that almost any behavior confers an evolutionary advantage and thus is writ' in the genes through natural selection. Arguing that it is, nonetheless, important to study the interaction of culture, experiential, and biological effects, he proposes a number of characteristics that he believes are uniquely human. He closes by discussing the role such traits might play in the life of humankind today.

Festinger, L. (1983). *The human legacy*. New York: Columbia University Press.

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Festinger, L. (1986). The social organization of early human groups. In C. F. Graumann, & S. Moscovici (Eds.). *Changing conceptions of crowd mind and behavior.* New York: Springer-Verlag.

In this chapter, Festinger recounts the major changes in human groups that have occurred over the last 20,000 years. In doing so, he contemplates the reasons behind some of the changes during this time period, using archaeological data to support his assumptions.

In the end, his newest research had (paradoxically) returned him to studying the underpinnings of psychology. He described the goal of his new interests as trying to "see what can be inferred from different vantage points, from different data realms, about the nature, the characteristics, of this species we call human" (Festinger, 1980a, p. 253). He claimed to feel bemused when his peers asked how his new research interests were related to psychology. (For a review of this research, see Gazzaniga, 2006).

Festinger, L. (1980a) Looking backward. In L. Festinger (Ed.), *Retrospections on social psychology* (pp. 236–254). New York: Oxford University Press.

Festinger offers personal reminiscences of the early days of social psychology, the changes in the field that have occurred in his lifetime, and ideas as to where the field ought to go. He focuses primarily on work inspired by the Research Center for Group Dynamics. In describing the state of social psychology, Festinger gives a personal account of how he himself became immersed in the field. He also discusses the work of Kurt Lewin, his mentor, and how it became a new, practical approach to the study of social psychology. Additionally, Festinger details the various problems that researchers faced in this field, including its initial lack of focus on the individual, its incompatibility with behaviorism, and its violation of ethical principles. Festinger eventually left the field of social psychology, a decision that he attributes to feelings of being "in a rut."

Gazzaniga, M. S. (2006). Leon Festinger: Lunch with Leon. *Perspectives on Psychological Science, 1,* 88-94.
The author describes his 20-year friendship with Festinger. It is a fund of personal stories about this caustic, playful, and brilliant psychologist.

In his final work, Festinger moved on from psycho-social-archeology and paleontology to an interest in ancient history and the history of religion. He worked with a number of medieval and Byzantine church scholars and eventually his interests focused on the differences between the Eastern and the Western (or Roman) church. (For a review of this research, see Gazzaniga, 2006).

Gazzaniga, M. S. (2006). Leon Festinger: Lunch with Leon. *Perspectives on Psychological Science, 1,* 88-94.
The author describes his 20-year friendship with Festinger. It is a fund of personal stories about this caustic, playful, and brilliant psychologist.

He hoped to shed light on the question as to why important ideas, conceived by an inventive mind, are accepted or rejected by a culture. He planned to contrast the West (which has long been receptive to new technologies) with the Eastern Byzantine Empire (which had a reverence for the past and was resistant to innovation). Festinger found a wonderful quote (cited in an unpublished manuscript) from an 11th century upper-class Persian writing to his son:

> You must realize, my son, that you may only enjoy the fruits of pure science in the next world. If you wish to reap mundane benefits from science, you must mix a practice with it that is not free of lies. . . . Similarly with medicine; as long as there is no legerdemain and quackery and indiscriminate prescription of drugs, the physician is unable to earn a livelihood (Gazzaniga, 2006, p. 93.)

In such a society, how can culture, innovation, and science flower?

In the fall of 1989, Festinger was diagnosed with cancer; thus he was forced to abandon his newest project. A scientist to the end, after receiving his diagnosis, he pursued the medical literature. Concluding that the odds were not in his favor, he decided not to pursue cancer treatment. He died on February 11, 1989 (age 69) in his beloved New York City.

Methodological and Statistical Contributions

Thus far, we have focused on Festinger's theoretical contributions but his contributions in the realms of nonparametric statistics, and scaling have been important to social scientists as well.

Methodology

For Festinger, throughout his life, the emphasis was on careful theorizing and the crafting of beautifully constructed experiments, and the application of his findings in solving real life problems. Festinger tested his theories with almost every methodology known to science, and if an appropriate method for testing his notions didn't exist, he made one up. He joined a doomsday group and conducted a participant observer study, waiting for True Believers to discover that the end of the world was not, in fact, imminent (Festinger, Riecken, and Schachter,

1964). He studied the impact of architecture on social relations, but when the study was sabotaged by protesters claiming the project was a Communist plot, he quickly switched gears and examined rumor transmission instead (Festinger, et al., 1948 and 1950c; Back, et al., 1950). When he wanted to find out what most affected vision—the visual system or the experience of relying on it—he had special lenses constructed so that people would see one thing while dealing with the world in a conflicting sense modality (Festinger & Canon, 1965).

Festinger, L., Schachter, S., & Back, K. (1948). *Social pressures in informal groups.* Cambridge, Mass.: MIT Press.

This book describes a classic study designed to find out what impact various architectural features have on people attitudes, opinions, values and goals. The authors studied 270 veteran families who were housed in a housing project at the Massachusetts Institute of Technology. The authors used a variety of research techniques—informants, observation, interviewing, and experiments only to discover the profound impact that architecture can have on people's lives. The relationship between three specific variables was considered: physical and functional distance; passive contacts; and features of design. With a focus on the formation of friendships and small groups within the student community, the authors found that propinquity predictably moderated the likelihood of relationship development. That it, the greater the physical or functional distance between people, the less likely friendships will develop between them; the closer the distance, the more likely friendships were to form.

(This text has been published five times: in 1948, 1950, 1959, 1963, and 1967, under slightly different titles. They all contain the same material, however.)

Back, K., Festinger, L., Hymovitch, B., Kelley, H., Schachter, S., & Thibaut, J. (1950). The methodology of studying rumor transmission. *Human Relations, 3*, 307–312.

When conducting a study on the impact of architecture on social life, the authors found their project plagued by rumors. They decided to take advantage of this problem and study the spread of rumors and the effectiveness of attempts to scotch them. The pros and cons of post-rumor interviews versus participant observation were discussed. They discovered that he first of these techniques yields limited data and is subject to error. The latter offers more promise, although it still possesses difficulties such as sample bias.

Festinger, L. (1950c). Laboratory experiments: The role of group belongingness. In J. G. Miller (Ed). *Experiments in social process: A symposium on social psychology* (pp. 31-48). New York: McGraw Hill

In 1947, the University of Chicago gave a symposium on recent theoretical and methodological advances in social psychology. They featured the work of the Michigan Research Center for Group Dynamics, which discussed advances in laboratory experiments, field experiments, and survey techniques. Festinger pointed out that the Center was now focusing on such neglected, but important, social problems such as leadership and intergroup conflict—especially on the factors that make people feel part of a group (say, a religious group) versus feeling an outsider.

Festinger, L., Riecken, H. W., & Schachter, S. (1956*). When prophecy fails: A social and psychological study of a modern group that predicted the end of the world.* Minneapolis: University of Minnesota Press.
What happens when a cult of doomsday prophets falsely predict the world's end? Posing as "believers," researchers were able to infiltrate such a group. In this illuminating paper, the authors detail the events before, during, and immediately after a prophecy failed to manifest. Rather than disband under the weight of disconfirming evidence, members engaged in a number of dissonance reducing behaviors, ultimately leading them to hold an ever-strengthened faith. The authors discuss the conditions under which people will tend to maintain or

abandon deeply entrenched beliefs in the face of overwhelming disconfirming evidence.

Festinger, L., Canon, L. K. (1965). Information about spatial location based on knowledge about efference. *Psychological Review, 72,* 373-384.

The authors conducted an experiment in order to determine whether humans receive "outflow" information from monitoring nerve impulses that are located in motor pathways. Results of this study demonstrated that the presence of "outflow" information influences accuracy when attempting to locate an object in space.

But it was in the design of experiments that Festinger displayed his genius. Festinger knew that if social psychology were truly to be a science, it needed to crack the nut of causality—to discover what factors caused which responses. And to pin down causality, the experimenter must devise an experiment, to manipulate the appropriate independent variables, so he could pin down cause and effect. And no one could craft experiments like Festinger. As Aronson (1991) observed:

> The operative phrase in this audacious belief is "with sufficient ingenuity." That is, the belief that any and all variables are manipulable in the laboratory becomes little more than an idle boast unless it is coupled with great craftsmanship and . . . artistry in the lab. Leon knew that in order to test most hypotheses that are truly interesting, the researcher must be able to construct and run the experiment with such skill and verve that the subject gets caught up in a powerful scenario that is compelling, believable, and fully involving (p. 216).

Aronson, E. (1991). Leon Festinger and the art of audacity. *Psychological Science, 2*, 213–217.
Elliot Aronson, a former graduate student of Leon Festinger, provides a heartfelt account of Festinger as a methodologist, theorist, teacher, and mentor. In this brief biography, Aronson stresses the impact that Festinger had on the field of social psychology, namely through the introduction of cognitive dissonance theory and social comparison theory.

Festinger often argued that with sufficient ingenuity, a theorist ought to be able to manipulate any variable in the laboratory—nothing was too rare, sacred, taboo, or controversial to investigate experimentally. Festinger's dictum had a huge impact on social psychology. In the 1940s and 1950s social psychologists focused overmuch on personality variables and paper-and-pencil measures to test their ideas. In study after study, Festinger begin to look at not just what people said about their own thoughts and emotions but at how they actually behaved in social situations. Festinger summarized the "tricks of the trade" in conducting experiments in a series of papers (see Festinger & Katz, 1953; Festinger, 1954b, 1955a, 1959a, and 1979).

Festinger, L., & Katz, D. (Eds.). (1953). *Research methods in the behavioral sciences.* NewYork, NY: Dryden

The Center for Group Dynamics at the University of Michigan collaborated on writing this comprehensive guide to methods in the social sciences. The text features the work of 19 scholars writing on several specialized topics, including the relationship between theory and methods; methodological techniques (e.g., survey, laboratory, interview, and field

study research); measurement and statistical methods; and the analysis of qualitative material, to name a few. This text includes contributions from several scholars specializing in various areas within the social sciences.

Festinger, L. (1954b). Who shall survive? *Psychological Bulletin, 51,* 322-323.

In 1953, J. L. Moreno published a popular text entitled *Who Shall Survive?* Moreno discussed his theory (based on group therapy and group dynamics) advocating the advantages of psychodrama as a clinical tool. In this book review, Festinger wrote a critique of sociometry—pointing out that there was little or no convincing evidence that Moreno's claims were valid.

Festinger, L. (1955a). Handbook of social psychology, Vol. 1, Theory and method, Vol. 2, Special fields and applications. *Journal of Applied Psychology*, *39*(*5*), 384-385.

In his review of the *Handbook of Social Psychology* (Volumes I and II), Festinger generally judges the text to be a comprehensive and scholarly work—an in-depth resource for academics and students alike. He does, however, point out that several chapters miss the mark of relevance. Specifically, he notes that much of the material covered in Volume 1, for instance, the "Contemporary Systematic Positions" and "Research Methods" sections, are not grounded in or necessarily relevant to social psychological theory. Festinger does concede that Volume 2 of this work addresses social psychological theory more directly, with the caveat that the theory is defined quite broadly.

Festinger, L. (1959a). Sampling and related problems in research methodology. *American Journal of Mental Deficiency, 64*, 358–369.

A conference was held focusing solely on methodological considerations pertaining to the study of mental retardation. Several academics raised concerns about what they perceived to be pressing methodological problems. In particular, there was great concern about proper sampling techniques and the reliability of measurements. But Festinger disagreed. Troubled by the notion that a conference should be dedicated entirely to the topic of methodology, he argued that the

magnitude of the "problem" was being grossly exaggerated. Instead, it was his contention that researchers should first focus their efforts on generating novel hypotheses and discovering interesting relationships. Only after this discovery process should methodological concerns come into play. Not surprisingly, Festinger's remarks incited dissent from many of his conference peers.

Festinger, L. (1979). Sozialpsychologie: Bindeglied zwischen Verhaltens-und Sozial-wissenschaften. (Social psychology: The link between behavior and social-sciences.) *Zeitschrift für Sozialpsychologie (Social Psychology Journal), 10,* 214-219.
Festinger argues that social psychology provides a critical link between the social and other behavioral sciences.

Zukier (1989) also credited Festinger with the ascendancy of laboratory experimentation in social psychology, the scholar who "converted the experiment into a powerful scientific instrument with a central role in the search for knowledge." Aronson's (1991) conclusion is a fitting one: "The audacity to believe that we could rise to any occasion is Leon's unique and permanent legacy to the discipline (p. 216).

Zukier, H. (1989). Introduction. In S. Schachter & M. Gazzaniga (Eds.). *Extending psychological frontiers: Selected works of Leon Festinger* (pp. xi-xxiv). New York, NY: Russell Sage Foundation.
In this introduction, the author frames the importance and impact of Festinger's contributions to the social sciences in general and to social psychology in particular. He emphasizes Festinger's creativity and unconventionality--his tendency to generate a variety of novel research questions and hypotheses which, when tested, often yielded surprisingly counterintuitive answers and results. The importance of each work within the collection is briefly outlined. The author categorizes Festinger's

theory of cognitive dissonance “social psychology’s most notable achievement” (p. xxi.)

Aronson, E. (1991). Leon Festinger and the art of audacity. *Psychological Science, 2*, 213–217.
Elliot Aronson, a former graduate student of Leon Festinger, provides a heartfelt account of Festinger as a methodologist, theorist, teacher, and mentor. In this brief biography, Aronson stresses the impact that Festinger had on the field of social psychology, namely through the introduction of cognitive dissonance theory and social comparison theory.

Nonparametric Statistics and Scaling

Festinger was a statistics prodigy. In Stanford colloquiums, when a visiting dignitary would present his data, and someone in the audience would wonder aloud about how some of the variables would interact, Festinger would often calculate the new ANOVAs in his head, thus answering their questions. Were the speaker to challenge him, mocking such off the cuff analyses as obviously wrong, a subsequent laborious analysis would almost always prove Festinger right. That would always delight him. His mathematical and statistical talents were legendary.

Early in his career, worried that traditional ANOVAs and T-tests required populations to be normally distributed, Festinger developed non-parametric tests to enable researchers to deal with such unusual samples (Festinger, 1951a), such as populations with exponential frequency distributions (Festinger, 1943b), skewed populations (Festinger, 1943c),

and tests that required no reference to frequency distribution functions altogether (1946). He also tried to show how scale analysis could be used for dealing with qualitative data (Festinger, 1947a; 1951a).

Festinger, L. (1943b). An exact test of significance for means of samples drawn from populations with an exponential frequency distribution. *Psychometrika, 8*, 153–160.

The author describes a new nonparametric test for determining the significance of the difference between two means, when the samples are drawn from exponential populations. Examples of situations in which the test should be used are provided, together with a description of the computational procedures required for such tests. Comparisons of the results of this test with the erroneous application of the critical ratio on actual data show that rather large discrepancies exist between the two tests. Results obtained by applying tests which assume normality for exponential distributions are subject to much error.

Festinger, L. (1943c). A statistical test for means of samples from skew populations. *Psychometrika, 8*, 205–210.

What is the best way to determine if two means are different if samples are drawn from positively skewed populations? In this paper the author proposes techniques for dealing with such samples—specifically those possessing a Pearson Type III distribution function.

Festinger, L. (1946). The significance of difference between means without reference to the frequency distribution function. *Psychometrika, 11*, 97–105.

The author points out that existing tests for the significance of difference between means possess a serious flaw: they require specific assumptions concerning the distribution of the given population. The author points out the need for a test that does not possess this flaw and sets out to derive just such a test. The early nonparametric test he proposes is simple and requires a minimum of calculation. Better yet, it may be safely used with any kind of distribution.

Festinger, L. (1947a). The treatment of qualitative data by "scale analysis." *Psychological Bulletin, 44,* 149-161.
This paper reviews the literature with reference to the theory of "scale analysis," the various techniques of scale construction which exist using this method, and the evaluation and interpretation of the scales developed.

Festinger, L. (1951a). Assumptions underlying the use of statistical techniques. In M. Jahoda, M. Deutsch, & S. W. Cook (Eds.). *Research methods in social relations with special references to prejudice, Part II: Selected techniques* (pp. 713-726). New York: Dryden.

The author divides the types of data with which prejudice researchers must deal into two classes: one in which the data are in the form of frequencies of occurrence or nonoccurrence (enumerations), and another in which the data take the form of numbers along a scale of values. He describes the kinds of statistical tools that are available for each of these classes of data, the difficulties inherent in them, and the limitations of their use.

More substantively, Festinger attempted to develop quantitative models for calculating sociograms (Festinger, 1949) and for understanding decision-making (Cartwright & Festinger, 1943).

Cartwright, D., & Festinger, L. (1943). A quantitative theory of decision. *Psychological Review, 50*, 595-621. (Originally written as a Ph.D dissertation: An Experimental Test of a Theory of Decision." PhD diss., State University of Iowa, 1942.)

The authors contend that a scientific theory should be clearly stated and lend itself to mathematical quantification. They then propose a theory of decision that combines a topological analysis with a vector analysis. Through mathematical elaboration, the theory is quantified in a form amenable to empirical testing. It is suggested that, irrespective of school of thought, this type of approach can be employed to measure dynamic factors in a psychological setting.

Festinger, L. (1949). The analysis of sociograms using matrix algebra. *Human Relations, 2*, 153–158.

One of the most popular measurement techniques in sociology is the sociogram. Sociometric questions such as "Who are your best friends?" are often used when researchers are interested in the structure or patterning of relationships. Without an adequate representational technique for dealing with the complex data, however, past researchers have had to resort to simple and inadequate analyses. The author offers a solution for that problem.

Legacy

Festinger possessed a vivid personality; he was a brilliant theorist and fine experimental researcher. He used to argue that there was no well-crafted theory that could not be tested experimentally by an ingenious researcher, and he often proved his point. He was a sophisticated statistician. He possessed a restless nature and so in his lifetime he became fascinated by a wide variety of theoretical and practical questions. Thus, he ended up making important contributions in a variety of diverse fields. He was an early cross-cultural researcher and he made seminal contributions in understanding the cognitive and motivational factors that shape social influence, prejudice, and the communication of rumor. At a time when Behaviorism was paramount, he insisted it was important to study both cognition and emotion as well as behavior. He is probably best known for the theory of cognitive dissonance and social comparison

processes. He demonstrated the truth of Kurt Lewin's old adage: "There is nothing so practical as a good theory." Thus, Festinger made immense contributions to developing the theory of his day *and* providing answers to a number of perplexing practical questions, especially those connected with the war effort in the midst of World War II. Aronson (1991) observed:

> Festinger was an extraordinarily charismatic individual who had a wonderful blend of warmth and toughness that made him an invaluable (if sometimes devastating) critic and that made hanging out with him both joyous and "prickly" (p. 214).

Aronson described social comparison theory and cognitive dissonance as "the two most fruitful theories in social psychology" (p. 214). Others concurred, designating the theory of cognitive dissonance as "social psychology's most notable achievement" (Zukier, 1989, p. xxi.)

Zajonc (1990) observed that had Newton or Galileo died in childhood, classical mechanics would still have evolved, albeit a bit more slowly; but if Picasso had not existed, there would be no *Guernica.* Zajonc eloquently wrote:

> One can safely say that if there was never the configuration of genes and experience that emerged as Leon Festinger . . . social psychology would not be what it is today. It is even

> doubtful if experimental social psychology would have emerged as a discipline at all. This is saying on the one hand that experimental social psychology is in some ways a form of art, and on the other that Festinger was experimental social psychology's Picasso. For one must view Festinger's unique laboratory methods of studying social situations as nothing sort of a high form of art, and his research as products of rare beauty (p. 661).

For other biographies celebrating the career of Festinger see Aronson (1991), Schachter (1994), Schachter and Gazzaniga (1989) and Zajonc (1990).

Aronson, E. (1991). Leon Festinger and the art of audacity. *Psychological Science, 2*, 213–217.

Elliot Aronson, a former graduate student of Leon Festinger, provides a heartfelt account of Festinger as a methodologist, theorist, teacher, and mentor. In this brief biography, Aronson stresses the impact that Festinger had on the field of social psychology, namely through the introduction of cognitive dissonance theory and social comparison theory.

Schachter, S. (1994). Leon Festinger: 1919-1989. A biographical memoir. *National Academy of Sciences Biographical Memoirs, 64,* 99-111.

This biography is a detailed and reverence-filled account of Leon Festinger's academic achievements, honors, and interests. Schachter, who was a former colleague of Festinger's, writes of the unique genius that Festinger possessed and of his ever-lasting impact on the fields of cognition, social psychology, and visual and perceptual systems. Like many of the biographies written about this enigmatic mastermind, Schachter's account describes Festinger's tendency to get bored with his work and to shift his focus to entirely new fields. These varied interests led him to study "Lewinian" psychology, social psychology, visual perception, archaeology, and the history of religion. Through his diverse studies Festinger was able to make significant

multi-disciplinary contributions, which Schachter argues enriched every area that he touched.

Schachter, S. & Gazzaniga, M. (1989). *Extending psychological frontiers: Selected works of Leon Festinger.* New York: Russell Sage.

The authors point out that Leon Festinger's 40 year scrutiny of that "curious animal, the modern human being" fundamentally transformed psychological thinking and set the standard for an entire scientific field—social psychology. They present 24 of Festinger papers, chosen because they are classics in the field and critical turning points in his long career.

Zukier, H. (1989). Introduction. In S. Schachter & M. Gazzaniga (Eds.). *Extending psychological frontiers: Selected works of Leon Festinger* (pp. xi-xxiv). New York, NY: Russell Sage Foundation.

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Zajonc, R. (1990). Obituaries: Leon Festinger (1919-1989). *American Psychologist, 45,* 661-662.

Robert Zajonc, an accomplished social psychologist in his own right, refers to Leon Festinger as "experimental social psychology's Picasso." In this obituary, Festinger's work is likened to art in many respects as Zajonc recounts the creativity and inventiveness that his research entailed. He argues that had Festinger never existed, social psychology would be a vastly different field than it is today, and that it is likely experimental social psychology may never have manifested. After detailing Festinger's varied research and accomplishments, which are impressive to say the very least, Zajonc ends this reverential obituary with a humorous quote from Festinger himself, who was known to be an avid smoker, "Make sure everyone knows that it wasn't lung cancer!" Of course it was.

Festinger's contributions were conspicuous and widely recognized. He was elected to the American Academy of Arts and Sciences (in 1959) and the National Academy of Sciences (in 1972). In 1978 he received an honorary doctorate from the University of Mannheim. In 1980 he was named Einstein Visiting Fellow of the Israel Academy of Sciences and Humanities and also in 1980 he received the Distinguished Senior Scientist Award of the Society for Experimental Social Psychology. In 1959, the American Psychological Association recognized his contribution by awarding him their Distinguished Scientific Contribution Award. APA praised him for:

Citation

> "For fertile theorizing and ingenious experimentation in social psychology. He depicts social behavior as the responses of a thinking organism continually acting to bring order into his world, rather than as the blind impulses of a creature of emotion and habit. He and his students have devised laboratory techniques for reproducing under controlled conditions the subtle thought processes and motivations that regulate prejudice, communication of rumor, and social influence. He has been a leader in cooperative international experiments which test the validity of psychological generalization in various cultural settings. In his hands, psychological theory shows itself capable of explaining not only laboratory data, but complex social realities."
> American Psychological Association (1959, p. 784.)

Leon Festinger was a mensch!

American Psychological Association (1959). Distinguished scientific contribution awards: 1959. *American Psychologist, 45,* 784-793.
The journal names Leon Festinger as the winner of their 1959 Distinguished Scientist Award and provides a citation summarizing his research.