THE REAL "HAWTHORNE EFFECT"

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A defining characteristic of classic contributions to the social sciences is that they reward a close reading, even years after their initial publication. Frequently, they have lessons for later readers that were missed or overlooked when the work first emerged. The Hawthorne Studies have enjoyed a reputation—good and bad—over the decades since they were published, but in our view they contained some insights into the dynamics of worker perceptions that may illuminate some of the otherwise most perplexing expressions of workplace violence which have become more common in recent years. What happened at Hawthorne and what relevance might it have for us today?

The Hawthorne Studies were the single most important investigation of the human dimensions of industrial relations in the early 20th century. They were undertaken at the Bell Telephone Western Electric manufacturing plant in Chicago beginning in 1924 and continued through the early years of the Depression. The Hawthorne plant manufactured a variety of electrical equipment and its growth reflected the burgeoning home telephone market that developed in the 1920s. It employed 29,000 in 1927, but this number continued to grow until the early years of the Depression. As this kind of growth in highly specialized technological jobs was unprecedented in industrial societies, the effective management of worker skills required similarly unprecedented knowledge. The Hawthorne plant had created an Industrial Research Division in the early '20s. Personnel managers undertook a series of experiments to explore the effects of various conditions of work on morale and productivity.

In 1928, they consulted several external experts including Elton Mayo of the Harvard Business School, and Clair Turner, a professor of biology and public health at the Massachusetts Institute of Technology, to help interpret the results of the studies. Their classic reports are Elton Mayo's *The Human Problems of an Industrial Civilization* (1933) and Fritz J. Roethlisberger and W. J. Dickson's *Management and the Worker* (1939). Roethlisberger was a student of Mayo's at Harvard, and the Roethlisberger-Dickson account is the authoritative one. It appeared a decade and a half after the start of the studies, and was almost suppressed by senior executives at Hawthorne who were alarmed by the claims that management in the bank wiring shop was virtually incapable of controlling worker output let alone assessing appropriate levels of productivity.

The Illusion of Familiarity

In his preface to *Management and the Worker*, Mayo alludes to the fact that there was some misunderstanding associated with the findings at Hawthorne. He states that prior reports had created "an illusion of familiarity when the Hawthorne experiment is mentioned." He wrote: "but this is illusion: many of us have long been aware that there is no sufficiently general understanding of the course that the inquiry ran, of the many difficulties it encountered, and of the constant need to revise and renew the attack on the diverse problems presented" (Mayo, 1939: xi). *Management and the Worker* was written to clarify the record and reverse the illusion by providing a full account of the development of the experiments. There is little doubt that *Management and the Worker* struck a nerve among human relations specialists. Writing in *The Personnel Journal*, Charles Slocombe, director of the Personnel Research Foundation, called it "the most outstanding study of industrial relations that has been published anywhere, anytime." Stuart Chase, writing to a general audience in *Reader's Digest,*
declared it: “the most exciting and important study of factory workers ever made ... There is an idea here so big it leaves one gasping.”

Today, reference to “the Hawthorne effect” denotes a situation in which the introduction of experimental conditions designed to identify salient aspects of behavior has the consequence of changing the behavior it is designed to identify. When people realize that their behavior is being examined, they change how they act. Obviously, such changes are of methodological interest to psychologists who need to separate aspects of behavior that are natural from behavior that results from the experiment itself. The initial Hawthorne effect referred to the observation that the productivity of the workers increased over time with every variation in the work conditions introduced by the experiments. Those workers captured under the microscope put their best foot forward to show themselves in a more positive light, to work more effectively and to weather the tribulations of industrial work with personal grace and dignity. The evidence for this methodological artifact emerged from the illumination experiments and from the relay assembly tests.

The Illumination and Relay Assembly Tests
The illumination experiments were initially designed to determine whether increases in artificial lighting on the factory floor could reduce accidents and eyestrain and thus increase productivity. The electrical industry had a considerable investment in establishing the industrial advantages of enhanced lighting, and the National Research Council became involved with a blue ribbon panel of experts headed by Thomas Edison to explore the effects of changes in illumination. The experiments were conducted at the Hawthorne plant over a three-year period (1924-1927) and involved the manual winding of induction coils for telephone systems. It was clear to the engineers that it would be difficult to separate the net effect of illumination from the effects of other changes created by the experimental conditions. Researchers measured baselines in productivity and interviewed the workers about the changes in illumination. The foremen measured outputs during the day to identify changes in levels of productivity. Because the experiment was no secret, a control group of workers not subject to the same detailed supervision increased their output with the development of informal competition between the two groups.

Roethlisberger and Dickson provided the classic report of the study in the Introduction to Management and the Worker. They noted that even when illumination values were decreased, output increased. In fact, in one variation, when the light was cut down to .06 of a foot-candle “an amount of light approximately equal to that of an ordinary moonlight night ... the girls maintained their efficiency (1939:17).” It appeared as though the physical changes in illumination were less consequential than the psychological effects. In the 11 periods of the experiment, both the control group and the experimental group showed an improvement from the baseline regardless of whether the illumination was increased, decreased or remained constant. In the end “the results of these experiments ... failed to answer the specific question of the relation between illumination and efficiency” (p. 18) but they did establish the value of empirical studies of industrial productivity.

The Relay Assembly Room tests started in April 1927 and continued until June 1932 when the demand for parts was so low due to the Depression that the study was terminated. The Roethlisberger-Dickson report covers the first 13 periods, ending in June 1929. This was the best-known phase of the Hawthorne study, and the one that has received the greatest empirical scrutiny. It reflects the theoretical ideas of Elton Mayo who suggested that in modern industrial conditions, worker motivation was not a simple function of exhaustion or fatigue, as behaviorist understandings of human nature would suggest. Nor was productivity determined primarily by material aspirations once a certain level of creature comforts was established. In terms of fatigue and exhaustion, although this was a concern in 19th century conditions of production such as mining and forestry, machines had increasingly replaced human labor. For Mayo, complaints of fatigue among modern workers were probably an indication of morale problems and workplace maladjustment. As for a focus on income, Mayo suggested that, while important, workers also put great stock in the social dimensions of work and their development of a humane set of relationships with co-workers and supervisors. The Hawthorne researchers increasingly recognized the importance of grasping the “total situation” of the workers both on and off the job and their “sentiments”—their emotional life, cultural values and personal aspirations. Mayo’s insight was lost, however, when the post-war criticisms of Hawthorne stressed the role of self-interest in the level of productivity and in the restriction of productivity by piece workers; these criticisms were