

The Hawthorne Effect

Key Words— Hawthorne effect, Hawthorne researches, Counseling, Management, Human factors, Workers.

Reader Aids—

Purpose: Tutorial

Special math needed: No math at all

Results useful to: Engineers, managers, workers

Editor's note— The Hawthorne Effect is invoked to explain many effects of experiments with human subjects (as opposed to inanimate objects like transistors and generators). But the effect is not as simply defined as many people think. Ref [1] is reprinted here with the kind permission of the Western Electric Company. Ref [2] is the first book on the subject of the Hawthorne Researches and the Hawthorne Effect. Ref [3] is the second book on the topic and is reviewed on page 17 of this Transactions. I commend this article and that book to your attention.

To many in industry and the academic world, the achievement for which Western Electric is best known had nothing to do with communications technology. It dealt with the intangible and once mysterious study of what motivates people to work. The classic findings, many of which now seem self-evident, stem from the widely known Hawthorne Studies.

They began in 1924 when the Research Council of the National Academy of Sciences sponsored experiments at WE's Hawthorne Works to learn more about the effects of lighting on workers' output.

During three years of experimentation, the intensity of illumination was increased and decreased and the effect on output was observed. The results were puzzling because in no case did the increase or decrease in production relate to the increase or decrease in illumination. At one point, lighting was reduced until it was about equal to moonlight, but the girls maintained their efficiency throughout. In fact, they said they became less tired than when working under bright lights.

Obviously, the study was getting nowhere as far as learning about proper lighting was concerned, so the Research Council gave it up. But meanwhile, intriguing questions had been raised. It had become apparent that human factors had been more important than how bright the lights were.

The next step involved putting a smaller group of workers under closer control and observation in the hope that some of the factors responsible for the changes in output would be revealed. The idea of the second study was to discover the optimum working conditions. Thus, six female telephone relay assemblers became immortalized in print.

The special six started working together in April, 1927. They were put in a separate room, free of the pressures and disruptions of a large work group. An observer was with them to record their reactions, and a counter was placed at each work position to keep track of the output.

The experiment continued for five years. Every few weeks some kind of change was made. Rest periods and hot lunches were scheduled, and then taken away. The length of the working day was altered from time to time. Saturday morning work was eliminated, then put back.

Meanwhile, every kind of record was meticulously kept—each girl's output moment by moment, the quality of their work, the room's temperature and humidity by the hour. The hours each girl slept at night were recorded voluntarily by them, and they agreed to periodic health examinations. But no one factor correlated with any other; in fact, overall output consistently rose, even in the face of changes in working conditions that researchers felt should have had adverse effects on both morale and output.

The researchers then realized that they were dealing with a *team* that had developed its own leadership and group spirit. They learned early that the social or human relationships among the operators themselves were apparently more important than anything else. Even a simple change—such as who sat next to whom—affected output.

The observers also saw that morale was an important factor. These girls had been singled out for a purpose the company considered important; the "brass" was interested in their daily production, interested in whether they felt tired at the end of the day. Thus, the attitude of management, as reflected in the changes introduced, had changed the attitude—and the output—of the girls more than had the changes in work conditions.

As the study progressed, the management was ready to use any findings that seemed to have been sufficiently tested.

The most important of these was that rest periods were beneficial. Beginning in 1928, therefore, rest periods were gradually introduced throughout the plant in those areas where repetitive work was performed. Analysis of the results showed that there was no decrease in production.

Further "test room" experiments were undertaken and a new approach tried. It was reasoned that if a positive change in employee attitude would prove so valuable, it would be worthwhile to find out what unfavorable attitudes existed toward the com-

pany and see what could be done to change them. A large-scale program of confidential interviews was held starting with 1600 people in the Inspection Branch. By July, 1929, the interview technique had itself become a new exploration. Hawthorne's researchers developed what is now known as the non-directive technique. Employees, given the chance to talk freely and in complete confidence, simply opened up. It was noted immediately that almost all of these employees said they felt better for having gone through the experience.

By the end of 1930, more than 21,000 employees had been interviewed. Nor was this the end of the experiments. In November, 1931, still another was designed. Researchers began studying a group of workers to learn more exactly how the workers' own social or informal organization operated to establish norms and to control the output of every member. Observations continued for half a year, and the data collected, added to that previously amassed, provided the raw material for that classic text on human relations: "Management and the Worker."

William J. Dickson, now Assistant Manager, Personnel Research, at headquarters, with the collaboration of Professor F. J. Roethlisberger of Harvard, re-analyzed the data resulting from the Hawthorne experiments. After three years' work, they condensed the result of these studies to 600 pages—the definitive study on the human world inside a modern industrial plant.

More important even than any of the specific findings, Dickson feels, was the new approach to the industrial worker that the Hawthorne studies suggested. In the '20's, the factory was largely the province of the efficiency expert with his stop watch,

and the engineer with his slide rule; science could provide the worker with the tools, and pay was the incentive. Yet the Hawthorne studies showed that, given the same tools and pay, a different mental attitude could mean an increase in output of 20 or 30 percent. That was more than enough to make industry take notice.

The Hawthorne studies made great contributions in specifics like rest periods, length of work hours, supervisory and management training programs, counseling, vocational guidance, personnel administration and the like.

But it is in the intangible realm of attitudes and approach to problems that the studies have been most significant. Today, industry starts with the assumption that industrial man does not live by stop watches and comparative pay scales alone. What the Hawthorne studies brought home to the business world was a new emphasis on the employees' needs, a deeper understanding of the human factors involved.

REFERENCES

[1] "There Are People Inside Those Buildings", William L. Brown, *WE*, vol XXI, 1969 Jan, pp 27-29.
[2] F.J. Roethlisberger, William J. Dickson, *Management and the Worker*, Harvard University Press, Cambridge 1939.
[3] William J. Dickson, F.J. Roethlisberger, *Counseling in an Organization*, Harvard University, Boston 1966.

Book Reviews

Ralph A. Evans, Product Assurance Consultant

Counseling in an Organization

William J. Dickson and F.J. Roethlisberger, 1966, \$10.00, 480 pp.
Division of Research; Harvard Business School; Soldiers Fields;
Boston, MA 02163 USA. LCCN: 66-28808.

Table of Contents

Part I. Introduction

1. An Overview of the Counseling Program and the Problems of Evaluating It	16 pp
2. The Rationale of the Counseling Program	28 pp
3. The Formal Organization of the Counseling Program	18 pp

Part II. Employee Concerns at Work

4. Situational Sources of Concerns at Work	22 pp
5. Keeping a Job	24 pp
6. Friendship and Belonging	21 pp
7. Felt Injustices	34 pp
8. Authority	39 pp

9. Job and Individual Development	40 pp
-----------------------------------	-------

Part III. Contributions of Counseling

10. The Personal Resolutions of Concerns at Work and Their Organizational Outcomes	24 pp
11. The Difference Counseling Can Make	60 pp

Part IV. The Ambiguity of the Counselor's Role

12. The Organizational Problems of Counseling Employees	40 pp
13. Counseling and Supervision	26 pp
14. Counseling and the Logics of Organization	24 pp

Part V. Conclusions

15. The Criteria for the Conclusions	16 pp
16. The Systemic Problems of Counseling	14 pp
17. Worker, Supervisory, and Management Development	28 pp
Index	3 pp