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Questioning the Hawthorne effect

Light work

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Being watched may not affect behaviour, after all

WHEN America's National Research Council sent two engineers to supervise a series of industrial experiments at a large telephone-parts factory called the Hawthorne Plant near Chicago in 1924, it hoped they would learn how shop-floor lighting affected workers' productivity. Instead, the studies ended up giving their name to the "Hawthorne effect", the extremely influential idea that the very act of being experimented upon changes subjects' behaviour.

The idea arose because of the perplexing behaviour of the women who assembled relays and wound coils of wire in the Hawthorne plant. According to accounts of the experiments, their hourly output rose when lighting was increased, but also when it was dimmed. It did not matter what was done; so long as something was changed, productivity rose. An awareness that they were being experimented upon seemed to be enough to alter workers' behaviour by itself.

Corbis

Working hard? It must be Monday

The data from the illumination experiments had never been rigorously analysed and were believed lost. But Steven Levitt and John List, two economists at the University of Chicago, discovered that the data had survived the decades in two archives in Milwaukee and Boston, and decided to subject them to econometric analysis. The Hawthorne experiments had another surprise in store for them. Contrary to the descriptions in the literature, they found no systematic evidence that levels of productivity in the factory rose whenever changes in lighting were implemented.

It turns out that idiosyncrasies in the way the experiments were conducted may have led to misleading interpretations of what happened. For example, lighting was always changed on a Sunday, when the plant was closed. When it reopened on Monday, output duly rose compared with Saturday, the last working day before the change, and continued to rise for the next couple of days. But a comparison with data for weeks when there was no experimentation showed that output always went up on Mondays. Workers tended to beaver away for the first few days of the working week in any case, before hitting a plateau and then slackening off.

Another of the original observations was that output fell when the trials ceased, suggesting that the act of experimentation caused increased productivity. But experimentation stopped in the summer, and it turns out from the records of production after the experiments that output tended to fall in the summer anyway. Perhaps workers were just hot.

There is a suggestion in the data that productivity was more responsive to changes in artificial than natural light. This could be interpreted as a subtler version of the Hawthorne effect, if you believe that workers were aware that changes in artificial light were induced by the experimenters, whereas natural light was changing on its own. But even this evidence is weak. For something so influential and intuitively appealing, it turns out that the

Hawthorne effect is remarkably hard to pin down.