

V. 次の英文を読み、設問 1～5 に答えよ。

▶ In experiments involving human subjects, a great many subtle influences can distort research results. One distortion arises from the Hawthorne Effect. This refers to any situation in which the experimental conditions are such that the mere fact that the subject is aware of participating in an experiment, is aware of the hypothesis, or is receiving special attention tends to improve performance. The name came from studies carried out at the Hawthorne Plant of the Western Electric Company. In one of these studies the illumination of three departments in which employees inspected small parts, assembled electrical relays, and wound coils was gradually increased. The production efficiency in all departments generally went up as the light intensity increased. Experimenters found, however, that upon decreasing the light intensity in a later experiment, the efficiency of the group continued to increase slowly but steadily. Further experiments, with rest periods and varying the length of working days and weeks, were also accompanied by gradual increases in efficiency whether the change in working conditions was for the better or for the worse. Apparently the attention given the employees during the experiment was the major factor leading to the production gains.


▶ Another distortion of experiment results which has been widely observed is the John Henry Effect. The legend of John Henry tells of a black railroad worker who tested his strength and skill at driving steel railroad spikes against a steam driver that was being tested experimentally as a possible replacement for the human steel drivers. The John Henry Effect refers to a situation often found in educational research in which a control group performs above its usual average when placed in competition with an experimental group that is using a new method or procedure that threatens to replace the control procedure. This effect was named and described by Robert Heinich in 1970 while reviewing studies that compared television instruction with regular classroom teaching. He found that the classroom teachers in the control group often made a “maximum” effort, and thus their students’ performance matched the performance of students who viewed televised instruction. Since Heinich’s work, several studies have been conducted in which the John Henry Effect appears to have operated because unusual effort in the control group has been observed, and control subjects matched or exceeded the performance of experimental subjects. Gary Saretsky, who conducted much of the study of this phenomenon, concluded that the John Henry Effect is likely to occur when an innovation is introduced in such a manner as to be perceived as threatening to jobs, status, salary, or traditional work patterns.


It is fairly easy to confuse the John Henry Effect with the Hawthorne Effect. The two have somewhat opposite effects on an experiment, however, because the Hawthorne Effect reflects the impact of being part of an experiment upon the experimental group’s performance, whereas the John Henry Effect reflects the impact upon the control group in experiments where the experimental group is perceived as competing with or threatening to surpass the control group.


[注] control group：統制群。実験の際に実験群（experimental group）との比較の対象となるグループ。



1. According to the passage, which one of the following describes the finding of the studies that helped researchers identify the Hawthorne Effect?
  - a. The production efficiency generally improved as the light intensity increased.
  - b. The performance of the group being studied increased steadily regardless of the working conditions.
  - c. The production efficiency gradually decreased as the light intensity decreased.
  - d. The performance of the group being studied increased steadily as the attention given to the employees increased.



2. According to the passage, which one of the following describes a research finding that helped identification of the John Henry Effect?
- a. Students in the experimental group made unusual efforts to do well because they felt that the great performance of the control group was threatening.
  - b. Despite the great efforts of students in the experimental group, their performance was not as good as the performance of the control group.
  - c. The good performance of the control group in previous studies could be explained by their efforts to follow traditional work patterns.
  -  d. Students in the control group performed as well as those in the experimental group because the teachers in the control group made strong efforts.
3. Suppose that you conduct an experiment to compare the effectiveness of new and existing English teaching methods. Students in the control group are taught by using the existing method, while those in the experimental group are taught by using the new method. Which of the following possible study findings can be explained by the Hawthorne Effect and which by the John Henry Effect?

 [ 3 - 1 ] The Hawthorne Effect

 [ 3 - 2 ] The John Henry Effect

- a. The control group performs better than the experimental group because the control group tries very hard to demonstrate the effectiveness of the existing method.
  - b. The experimental group performs poorer than the control group because knowing that they are participating in the study has made them nervous.
  - c. The experimental group performs very well because the students in this group are aware that the researcher gives them attention and expects this group to perform better than the control group.
  - d. The control group performs poorer than the experimental group because students in the control group have teachers who are not familiar with the method.
4. Which one of the following best describes the main purpose of the last paragraph?
- a. To clarify that the Hawthorne Effect and the John Henry Effect refer to the same phenomenon.
  - b. To clarify that the Hawthorne Effect explains results of educational research better than the John Henry Effect.
  - c. To highlight the impact of the Hawthorne Effect and the John Henry Effect upon control groups.
  -  d. To highlight differences between the Hawthorne Effect and the John Henry Effect.
5. Which of the following match the content of the passage? Select **two** options that accurately describe points discussed in this passage.
- a. Both the Hawthorne Effect and the John Henry Effect were named after researchers who discovered the phenomena.
  - b. Gary Saretsky's research showed when the John Henry Effect might occur in research involving human subjects.
  -  c. Both the Hawthorne Effect and the John Henry Effect may distort findings of research involving human subjects.
  - d. When an unexpected research finding suggested presence of the Hawthorn Effect, additional experiments were not conducted to confirm the initial finding.
  - e. The Hawthorne Effect and the John Henry Effect taken together provide a full explanation of experimental distortions.

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