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THE HAWTHORNE EFFECT: CAN IT VALIDATE SOCIAL SCIENCE RESEARCH?

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Abstract: This paper will review the phenomenon and origins of the Hawthorne effect and its common interpretation that field-based researchers act as a social interference to the evaluation and effectiveness of any new program, curriculum or product. The Hawthorne effect's common interpretation of researcher bias led to the suggested need for a control group with a double-blind experimental research design in order to neutralise its effect. The Hawthorne effect appears to invalidate much of contemporary practice action research and qualitative research generally, in which strong social relationships between the researcher and his/her field "subjects" are considered to be essential for a successful project outcome. Subjects are usually called "partners" in this research model, because they are of equal status to the researcher who negotiates a contract to engage their cooperation and active contribution to the research process. Rogers' concept of "congruence" is often used to describe the relationship between researcher and field researcher, just as he used it to describe the counselor-client relationship. Evaluation research does not require or generally advocate the use of a control group, because it asks a different question from that asked by experimental researchers: "Does this program, curriculum or product make a cost-effective difference?" Evaluation research involves a decision-oriented social encounter, rather than a conclusion-oriented approach to answering research questions. Given these paradoxes of research methodology between the experimental and evaluation research paradigms we have asked a very simple question: "how does the evaluation research paradigm explain the Hawthorne effect?" We will answer this question by providing a radical new interpretation of the Hawthorne effect that now validates the action researcher to perform social experiments within his or her own natural setting.

Introduction

The Hawthorne effect has long been regarded as the 'Achilles heel' of participatory-based research ever since its accidental discovery in the late 1920s. Researchers, drawn mainly from the positivist paradigm, have cited the Hawthorne effect as a validation of research that places the researcher in a detached position from his/her "subjects", thereby avoiding any chance of corrupted data through social engagement. In more recent times, however, this positivist research paradigm has been challenged by many qualitative and action researchers (e.g. Carr & Kemmis, 1986; Eisner, 1991 & 1999; and Harré, 1993). Rom Harré, for instance, proposed a "new paradigm" approach to social psychology (Harré, 1993). New paradigm social psychology offers an alternative research paradigm to that of the long-accepted positivist agenda, which adopts a physical science approach (Harri-Augstein & Thomas, 1985). This new paradigm approach of human inquiry is considered by John Heron (Heron, 1981) and others (e.g. Carr & Kemmis, 1986; Torbert, Harré, Elden, Sanford and Parlett, in Reason & Rowan, 1981) to validate "intentional interaction", whereby the researcher and his/her subjects work fully together on a cooperative basis. This cooperative partnership of research is carried out in real-life social situations and forms the philosophical basis of what is now understood to be participatory action research. The "real-world" has become the action researcher's laboratory and "subjects" have become co-research workers, or change-agents of the congruent social enterprise, which attempts to achieve positive change within the unique action research situation rather than achieve replicable results that validate some wider hypothesis. This article reexamines the Hawthorne effect in the light of this new paradigm approach towards social science and demonstrates that, relative to the value-system assumptions of this alternative research

perspective, a new interpretation of the Hawthorne effect actually validates participatory action research.

The Social Paradox of Educational Research in the Classroom

The common interpretation of the Hawthorne effect's acting as a hindrance to the action research evaluation of the effectiveness of a new program, curriculum or product will now be questioned. The impact of the original interpretation of the experiment in the Hawthorne Western Electric factory in the late 1920s was to recommend the necessity of a control group with a double-blind experimental research design in order to neutralize the Hawthorne effect. The aim was to implement controls against experimenter bias and avoid the possibility of a self-fulfilling prophecy. The Hawthorne effect has, unfortunately, been regularly used as a kind of "academic Exocet" in order to invalidate classroom-based research that has not taken into account the above traditional experimental cautions.

Indeed, the Hawthorne effect was used to criticise and became the unfortunate stumbling block towards the otherwise positive findings of the 1960s Initial Teaching Alphabet (ITA) educational research project in the United Kingdom (Downing, 1967). The ITA Project (Pitman & St. John, 1969), was based on teaching children to read and write a modified alphabet that spelt words according to a strict phonetic approach. This kind of invalidation, however, led to the undermining of most small-scale classroom-based research activities involving the teacher as researcher.

The research designers of the ITA ensured that the necessary safeguards of the positivist paradigm were implemented through the use of the classic "control" and "experimental" group model with an up-front identification of the key project "variables". Despite all these precautions, the social reality of *real teachers* and *real pupils* in *real-life* classrooms was felt to adversely influence the "findings" in both groups. The problematic social interactions and biased attitudes of teachers, parents, visitors and the outside media in general were seen as behaviorist-styled stimuli acting either in favor of, or against, the Hawthorne effect for both the control and experimental groups:

> "Teachers....are more susceptible [to providing stimulating attention to pupils], but in assessing the Hawthorne Effect one must differentiate between the stimulus that comes from knowing the results are being watched and the quite separate and growing stimulus provided by the success of the work under investigation" (Pitman & St. John, 1969, p.166).

If a large-scale and well-controlled, classroom-based educational project such as the ITA can flounder on the basis of the Hawthorne effect, what hope is there for validating any kind of social science research that is designed to effect change in social situations? Thus, relative to the traditional positivist research paradigm, any classroom-based teacher operating as a small-scale researcher is claimed to "bias" his/her own data and such an experimental model has been strongly discouraged by much of the positivist research community. This has resulted in a preference towards large-scale projects with sufficient control groups in place, so that the experimental "variables" could be properly measured and possible confounding variables controlled. This paradigm also promotes an Orwellian ethical approach that encourages a dehumanisation of social science research practice, with people defined as experimental "subjects", to be socially detached from the researchers, so as to avoid any contamination of data through social interaction. Another bizarre solution to overcome the social interaction problems attributed to *data interference* has been the development of Hawthorne effect-free unnatural classroom settings. Such places are generally found within university laboratories, or laboratory schools, as alternative venues for conducting both educational and social science research. One example of this trend is the phenomenon of artificial intelligence educational laboratories, which are experimentally used for inferring

generalizations about pedagogic theory that employs computers as learning tools. The subjective human learning setting of a real-life classroom is considered by these researchers as an inappropriate research venue for inferring what might actually happen in the classroom! This is because the classroom itself is considered by the positivist experimenters to be an inappropriate place for examining the relationship between social interaction and psychological learning theory. Therefore, within this experimental paradigm, we have now reached the absurd position where studies requiring observation of social interactions cannot be fully validated by professional practitioners operating from within the same situation.

Action Research: A Different View

Action research, indeed qualitative research generally, has a different view of the Hawthorne effect. Strong social relationships between the researcher and his/her field "subjects" are considered to be essential to the successful outcomes of an action research project - this is often referred to as developing a "Rogerian" relationship and improves the scope and quality of the *in-situ* shared discourse and recorded qualitative accounts.

Subjects are usually called "partners" in this research model, because they are of equal status to the researcher who negotiates a contract to engage their cooperation and active contribution to the research process. Rogers' (1971) concept of "congruence" is often used to describe the ethical relationship between the researcher and field-based research participants, just as he used it to describe the ideal therapeutic climate for generating qualitative trust through a process of initiating "unconditional positive regard" in the counselor-client relationship. This concept of congruence, however, has since been extended to define the action research protocol of "social parity" Coombs (1995). The paradox of achieving social parity as an experimental methodology is that it diametrically opposes the ethical values, and hence the experimental rationale, of the traditional positivist paradigm. Positivists consider social phenomena such as the Hawthorne effect from within their own experimental perspective and use it as a means to caution, discredit and invalidate research findings obtained through participatory action research. Rom Harré (1981) understands the positivist-empiricist research approach and considers that " positivism [is] a science [that] should be taken to be no more than a well-attested body of rules for predicting the future course of observation" (p.8). Since that statement Harré has encouraged researchers to "develop methodologies commensurate with the nature of the phenomenon they are studying" (Harré, 1993). Harré argues against the traditional paradigmatic approach of standard experiments with variables and numerical results and, instead, proposes a new approach, which he calls new paradigm ethogenics. These ideas of Harré have been adopted by Coombs (1995) who maintains that the new paradigm approach towards social science experiments provides both a new perspective and alternative research agenda.

Indeed, it is the nature of human relationships in real-life social settings that Harré claims is the basis of genuine developmental social psychology, implying that new paradigm social psychology provides both a rationale and validation of participatory action research: "people become capable of jointly producing the flow of actions that make up social episodes and in the structures of which social relations have their immanent being" (Harré, 1993, p.26).

It is from this new paradigm social psychology perspective that we wish to re-examine the nature and social phenomena underpinning the Hawthorne effect. In doing so, we would like to consider the nature of evaluation research relative to the experimental approaches of positivism, humanism and new paradigm social psychology. It is from a deeper understanding of these alternative research perspectives that we can perceive a new role for the Hawthorne effect in terms of validating qualitative data obtained by a participatory action researcher from within a social setting.

Interpreting the social context of the Hawthorne effect is therefore subject to the relative perspective of the experimental paradigm that it is being compared with. It is not that the positivist experimental paradigm is wrong *per se*, but more that it doesn't recognize the sociological value of complex human relationships only to be found in real-life social settings. From the positivist perspective, the Hawthorne effect has been used to validate the notion of reducing the complex number of "interfering" variables of real-life situations by referring social psychology and educational experiments to a laboratory that both reduces and removes these "noisy" confounding variables. The problem with this experimental approach is that the human actions observed in the laboratory are not necessarily the same actions of real life.

The main difference between the two paradigms, however, lies in the interpretation of behavior. The positivist paradigm assumption that all human behaviour and interaction is governed by some form of universal "laws" justifies the approach taken in reducing "variables" and by moving experiments to the safety of the laboratory. The new paradigm psychology approach believes this assumption to be too simplistic, indeed, that human behaviour is not so much governed by laws of social interaction, but that the actions occurring in a social situation are unique to its context (Carr and Kemmis, 1986). Social interactions are complex and difficult to study. They represent uncertain acts and actions in the context of a particular situation, rather than obey predictable outcomes governed by a general set of laws.

Evaluation Research: Positivism, Humanism And The New Paradigms

Programme evaluation research does not require or generally advocate the use of a control group, because it asks a *different* question from that asked by mainstream experimental researchers. Rather than comparing two treatments as experimental, whereby positivist researchers typically conduct experiments relative to some hypothesis, evaluation researchers instead ask the question, "Does this program, curriculum or product make a cost-effective difference?" Evaluation research involves a *decision-oriented* approach, rather than a *conclusion-oriented* approach to answering research questions (Cronbach, 1980). It also questions the positivist, or "physical science", paradigm of social psychology with an alternative agenda, embracing the rationale of both Rogers' humanistic approach and Harré's (1981) new paradigm "ethogenics", which adopts a more metaphysical systemic encounter toward validating real-life social experiments. Coombs (1995) clarified Harré's notion of new paradigm ethogenics by defining it as: "the ethologist's methodology of working in the real-world field of events …discursively recording and accounting for real strips of life" (p. 139). Harré's metaphor of validating real strips of life as "social episodes" that represent episodic qualitative events redefines the social psychology experimental paradigm.

New paradigm social psychology promulgates an agenda based on, and commensurate to, the unique social needs of any real-life setting undergoing change, thereby defining an experimental protocol based upon the assumption that behaviour is affected by social context rather than innate laws. This ethogenic-based protocol is the philosophical axiom that differentiates humanism, social constructivism and new paradigm social psychology from mainstream behaviorism.

Gage (1989) recognizes that action is "defined as behaviour plus meaning" and considers the important distinction that interpretative researchers place upon interpretations of real-life social events, saying that "standard researchers had grievously neglected meaning-perspectives because they tried to observe [only] behavior" (p. 5). We, therefore, have an alternative experimental agenda and methodology for both delivering and validating action research. This paradigm assumes what Coombs (1995) refers to as a "social manifesto" approach toward social science action research and considers that the Hawthorne effect represents a validation of the Rogerian social interaction relationships generated during the field's real-time social episodes. In reality, this is about

validating the experiences witnessed by normal persons in their authentic social settings, or, as Winter (1998, p. 54) so eloquently puts it: “action research is about seeking one’s own voice, an authentic voice, a voice with which to speak one’s experience [and] learn [from it]”.

From this ‘real-life’ perspective, the researchers at the Hawthorne factory should have further investigated the important lessons regarding the relationship between business productivity and new methods of industrial psychology. Clearly, the social context at the time of the 1920s was one of Henry Ford-inspired mass-production techniques, in which the social welfare of workers was given scant regard. The social issues and consequences of boredom in the workplace were not considered to be relevant to productivity, yet the social context of the workplace experiment was positively influenced by the researcher’s inclusive actions. For once, these workers were the focus of special interest and made to feel important. This *new interest* in their daily tasks was presumably enough to boost morale and, thereby, productivity and in today’s language would have been considered as “empowerment”. The Hawthorne effect was, in reality, a social and ethical phenomenon peculiar to that particular socio-business context and additional studies should have been pragmatically recommended in order to both understand and exploit it further as a means of boosting production. Indeed, in today’s climate of team building and task sharing in the workplace, the Hawthorne effect would have been interpreted somewhat differently. Workers at the end of the twentieth century are no longer regarded as unquestioning mechanical slaves. Rather, people are seen as life-long learners who belong, as participants, to learning organisations. Senge et al. (1994) maintain that:

> In organizations, we believe the people who contribute the most to an enterprise are the people who are committed to the practice of these disciplines [skills related to personal mastery, mental model reflection, shared vision building in a group, team learning and systems thinking] for themselves - expanding their own capacity to hold and seek a vision, to reflect and inquire, to build collective capabilities, and to understand systems (p.7).

The Hawthorne effect, therefore, provides a confirmation of how action researchers may successfully interact within a social context to bring about positive change in both attitudes and task performance. The irreversible and unique nature of such social events may be conceptualized as real-life social experiments, or considered as a form of “social entropy” that defines the unique and unpredictable actions of complex human behaviour to be found within a unique social context. This perspective of social science research invalidates the simplistic assumptions of the classical experimental-control group positivist paradigm that requires “repeatability” of the research-tested process in order to establish a hypothesis based upon some behavioral law (see the clarifications given in Table 1). Perhaps this is why the positivist paradigm has failed to establish that elusive black-and-white law proving that watching violent videos has a direct outcome upon an individual’s actions. If we assume that an individual’s prior learning experiences, or personal context, has something to do with the way in which an individual may be psychologically affected by a violent video encounter, then our research protocol would be very different from that of a positivist approach. The traditional paradigm would probably consider establishing an experimental hypothesis based upon stimulus and response sessions of children watching violent videos in the laboratory and look for any discernible outcomes.

An action research approach from within the new paradigm perspective would recognize the holistic influence of social and personal context upon one’s behaviors. Bandura (1986) affirmed this assumption when he stated that behaviour is a function of the person *and* his/her environment (i.e., $B = f(P, E)$). Action researchers may conduct an analysis of community-based case-studies, looking at patterns of prior learning influences and post-violent video actions, relative to a number of various social contexts (e.g., family, peer-group or school). This, admittedly, would be a more difficult and complex study, but it would be commensurate to the complexity of the situation and,

perhaps, patterns of authentic evidence could establish which members of society were more vulnerable and why. Such an approach represents common sense and clearly follows Gage's call for research pragmatism. A summary of the above comparison of the positivist research methodology with that of the participatory action research paradigm is outlined in Table 1. Important generic experimental components have been identified and compared to their respective research perspectives relative to both paradigms. The purpose of this table is to clarify the key differences in methodology adopted by each paradigm relative to the standard set of experimental components listed. The rationale of each paradigm's research methodology is intended to explain the ethical basis and value-system (Zeni, 1998) from which the experimental assumptions are derived and how they provide a contrasting interpretation of the Hawthorne effect.

Table 1: A comparison of the positivist and the participatory action research paradigms

Generic experimental component	Positivist perspective	Rationale of research methodology - value-system assumptions and ethics	Participatory action research perspective	Rationale of research methodology - value-system assumptions and ethics
Purpose and key objective.	Principal experimental objective is to prove some hypothesis leading to generalised facts and "laws" governing social interaction behaviour.	Need for control groups and repeatability to avoid novelty and Hawthorne effect corruption.	Change-management within a unique social setting as the principal experimental objective.	Uniqueness of project leads to permanent benefits - "social manifesto" approach towards negotiating the experimental needs underpinning the social context.
Philosophical assumptions related to the experimental participant's behaviour.	Isolated subjects - "research on" rationale. Links to behaviorist notion of general "laws" affecting behaviour, i.e. the stimulus-response metaphor.	To avoid social engagement with researchers. No perceived relationship between experimental "variables" and individual subject's personal and social context. Thus, placing subjects into laboratory settings can safely reduce "noisy" confounding variables.	Participants are seen as co-researchers - "research with" the action researcher according to a policy of "social parity" in order to jointly produce and evaluate the actions that constitute as the field's social episodes.	Key assumption is that behaviour, in the form of acts and actions, is related to the field's social context and each person's prior learning. Social context is thus experimented with itself, with action researchers operating as change-agents within the field. That is, a policy of "intentional interaction" within the social setting in order to achieve Hawthorne effect benefits of changes in attitude and performance by the field's participants - commensurate to an action research model for learning organisations.
Results obtained from social data as evidence.	Generalised findings related to confirming or refuting the hypothesis.	Attempt to move from the particular situation to the general case in order to induce principles and/or laws.	Unique findings obtained as discursive "Event-Time" qualitative accounts.	Each situation is unique, but if the change-management process works in diverse settings, then it has general utility in terms of providing a generic model for practice.
Variables and other experimental factors.	To be manipulated or controlled and reduced, where possible.	Assumption that physical science paradigm may be extended to social science settings.	To be negotiated with the field's co-researchers as a need's analysis exercise identifying the "social manifesto" learning objectives.	Variables become project management objectives influenced by unrepeatable historical events. This leads to cohort effects and requires qualitative data to be collected from the on-going "social episodes", i.e. "Event-Time" qualitative data collection and analysis drawn from the social setting itself by all participants.
Wider lessons learnt and implications for general social practice.	Social events may be predicted, explained and treated according to established social science principles and/or laws.	Researchers must be objective and detached from the phenomena they study in order that the observed effects of the "treatment" can be generalised into repeatable social science laws and principles that can be applied to any social situation leading to predicted actions.	Social events are both complex and unique situations relative to their context. Lessons may be learnt from the subjective interpretations from all the field participants operating within the experimental social setting.	Generic lessons may be learnt across unique social settings if a systemic process and/or pattern of social activity and relationships can be established across diverse social fields *via* a process of triangulation of the obtained qualitative evidences. Generalisation is obtained *via* generic models of practice that positively influence/guide the actions within a social context.

Conclusion

We believe that this article has provided a new and useful perspective of the important differences between the positivist traditional experimental approach in social science research and participatory person-centred action research paradigms. Moreover, we have shown, relative to the positivist research paradigm's behaviourist assumptions, how the Hawthorne effect validates the exclusion of the researcher within a social setting and qualifies the experimental use of artificial social laboratories. However, from the new paradigm social psychology assumption of ethogenics, which explains how social and personal context affect human behaviour in a complex manner, we may interpret the Hawthorne effect as a validation of participatory action research. This phenomenon may be used, instead, to explain how and why the action researcher may function as a positive influence upon attitudes - and thereby invoke a change of practise - of participants operating within the social setting of any learning organisation.

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