RESEARCH FRAUD FACTORS AND EFFECTS

Richard S. Bobys, Morningside College, Iowa

INTRODUCTION

Perhaps the most well-known case of journalistic fraud was Janet Cooke's *Washington Post* article about the life of "Jimmy," a streetwise, eight-year-old heroin addict. Cooke was awarded the 1981 Pulitzer Prize for the story, until it was discovered that the story was false and that Jimmy did not exist (Associated Press, 1981). This was the first time a journalist had to return a Pulitzer Prize in the history of the prize.

Fraud has also been discovered in academic endeavors. Even though Robert Merton (1968: 613) contends that there is a "... virtual absence of fraud in the annals of science," a number of cases of such research fraud have been observed in recent years. Certainly, legitimate errors and oversights can, and do, result in misleading findings. This is not the issue being examined here. "Research fraud," refers to intentional efforts on the part of a researcher to communicate false or misleading findings to any audience, including the general public.

By examining the potential causes of this phenomenon, proposals for preventing it may be developed. Identifying the consequences of research fraud can demonstrate the seriousness of the problem.

PILTDOWN FORGERY

Perhaps the most infamous case of research fraud occurred in an archaeological "finding" of the missing evolutionary link between man and ape. In 1912 near the English village of Piltdown, amateur fossil hunter Charles Dawson claimed to have found a fossil with a cranium that conformed to that of a human and a jaw and teeth that conformed to the structure of an ape. For more than forty years, this "Piltdown man" was accepted as support for evolutionary theory. However, in 1953, these fossils were retested, using a new dating technique, and found to be modern human ape fragments. They had been placed together and chemically treated to make them look as old as they would have to be for them to be from the appropriate era.

Fluorine content of bones buried in soil increases over time (Fagan, 1978 124). It was discovered that the Piltdown bones contained far too little fluorine to be from the appropriate era. The exposer of the forgery, futher contends, "... the Piltdown fluorine values prove not only that the jaw and teeth do not belong to the crania but that they are of younger date (than the crania), (Weiner, 1955 37). In 1980, paleontologist Pierre Teilhard was implicated as a conspirator, along with Dawson, in the Piltdown forgery because of statements he made in letters to British scholar Kenneth Oakley, another exposer of the forgery (*Time,* 1980).

HEREDITY INTELLIGENCE FRAUD

Late British psychologist Cyril Burt, winner of the Thorndike Award given by the American Psychological Association, was renowned for his research testing whether intelligence was determined by one's heredity or environment. In administering I.Q. tests to twins who had been raised in separate environments from birth, he concluded that heredity was the more important variable.

Five years after his death, it was found that Burt doctored his data. It is also believed that his "co-authors" never existed and that their investigations were never conducted (Wade, 1976; Hearnshaw, 1979). One consequence of Burt's fallacious findings was the development of the three-tier British educational system in the 1940's. Students were placed into three different academic programs to correspond with their performance on an I.Q. test they took at age eleven. The system had been terminated before the revelations of Burt's research fraud.

False Skin Transplants

At the Sloan-Kettering Institute for Cancer Research in 1973, dermatologist William Summerlin reported that he had successfully transplanted a patch of skin from black mice to white mice (Hixson, 1976). This was considered to be the first step toward the transplanting of human tissues to replace cancerous tissues.

However, concern was expressed because other researchers could not replicate the findings. It was soon discovered that the black patches of skin were not due to the transplant-

ing of the skin of black mice to white mice, but from Summerlin coloring the skin of the white mice to make it appear that such a transplant had occurred. Summerlin claimed that he did this because of psychological stress. He was given medical leave with pay, and terminated at the Sloan-Kettering Institute (*Time*, 1974b:

Parapsychological Fraud

The field of parapsychology has often been looked upon with skepticism because of those who have feigned parapsychological powers and opportunists and eccentrics who have falsely claimed observing such phenomena. Despite this skepticism, the Institute for Parapsychology in Durham, North Carolina has been viewed as a legitimate research facility. In 1974 Walter Levy, newly appointed director of the Institute, resigned after having been found tampering with experimental data in an effort to claim empirical support for his research hypotheses.

He was testing whether rats could anticipate events, which is considered indicative of extrasensory perception, or could bring about physical changes in the environment by their own will power which is regarded as psychokinesis. *Time* (1974a': 68) reports the incident in this manner,

> Levy had electrodes implanted in the brains of rats in a zone where stimulation gave the animals intense pleasure. The stimuli were delivered at random intervals by a computer that in turn was keyed to the decay of atoms in a sample of radioactive stronium 90. Without any outside influence, the system would stimulate the rat's pleasure zones 50% of the time. If the rats could anticipate the computer by E.S.P. or influence the decay of the radioactive source by psychokinesis, their pleasure score would exceed 50%... Levy was reporting 54% pleasure stimulus scores indicating that the rats had psychic powers . . . One of Levy's assistants became suspicious when he noticed that the director seemed to be loitering needlessly around the equipment. With two colleagues, the assistant decided to check. From a hiding place one watched while the others helped Levy run a test. They saw him tamper with the recorder, causing his tape to score high.

Difficulty in Publishing

Social Scientists seeking publication have encountered high rejection rates and high submission fees.

Carolyn Mullins (1977: 134-156) Publication information on 540 journals in the social and other behavioral sciences shows a mean rejection rate of 76 per cent. The most prestigious journals reject more than 85 per cent of the articals submitted to them (Mullins, 1977: 126). With such discouraging odds against getting published, a desperate reseracher may feel inclined to bend the truth or engage in outright fraud in order to report landmark "findings" to induce acceptance by a major journal.

Many journals now charge a manuscript fee when it is sent to the editor of the journal. It has been contended that the implementation of these fees has discouraged many authors from submitting manuscripts, as indicated by the decline in manuscript submissions to *Social Forces* and the journals of the American Sociological Association (*Southern Sociologist*, 1979: 12).

PUBLISH OR PERISH

Another factor that may predispose a researcher to falsify research data is the requirment of many universities and research organizations for their faculty, and certain other personal, to publish. If they do not, they might be denied tenure, promotion, and salary raises.

> "It is neither an overgeneralization nor an oversimplification to state that in the faculties of major universities in the United States today, the evaluation of performance is based almost exclusively on publication of scholarly books or articles in professional journals as evidence of research activity" (Caplow & McGee, 1965:69).

Some pressure for faculty to publish may be necessary to promote research and the search for new knowledge in academic disciplines. However, this publish-or-perish pressure may provide an incentive for some researchers to manufacture findings to make them more publishable.

Applied Research Pressures

The publish-or-perish pressure predominates in the prue science realm. Con-

sequently, it is more of an incentive for fraud in prue or basic research endeavors. Applied scientists are also confronted with pressures and temptations to engage in fraud.

Evaluation research is one such applied area where research fraud is a frequent concern. Evaluation research involves an effort to objectively evaluate social action programs -- involving poverty, health, crime prevention, education, and the like -- to see if they are effective in reaching their stated goals. Fraud is contended when employees of a particualr program are commissioned to evaluate their own programs by "internal evaluations" or self-studies. If their program is found to be less than optimally effective, it may be terminated or funding may be substantially reduced. They may be pressured by superiors, and the realities of wanting to sustain the program that employs them, to falsify the evaluation report. Objective and rigorous evaluation research has not been very common because such research endeavors have had the ". . . dismaying tendency to show the program has had little effect" (Manheim, 1977: 113).

One social action program director accused external evaluation researchers of fraudulently finding a program ineffective for their own ulterior motives (Newman, 1980). Newman is the head of a program, funded by the U.S. Departmenbt of Housing and Urban Development, to use closed-circuit television surveillance and other electronic apparatus to reduce the crime rate in public housing projects. His external evaluaters contended that the program was not effective (Musfheno etal, 1978). Newman accused them of dishonest evaluation research. They disagreed (Musheno, et al, 1980).

Another factor that may contribute to applied research fraud invovles hired research consultants. The problem involves those unethical ones who change research findings or intentionally use invalid or biased methods to obtain findings that benefit their employers (Stodard, 1974: 234). St.George and McNamara (1979) report of a research consultant in the role of expert witness at an obscenity trial. He was supposed to have conducted a "citizen attitude survey" in Albuquerque, New Mexico to establish what were community standards regarding pornographic photographs. His findings supported the defense attorney who employed him, but it was discovered that the did not actually conduct the survey as he had claimed.

Applied research fraud may also be inadvertently encouraged by the manner in which medical research grants are distributed. In his examination of the false skin transplants on mice, reviewed earlier, Hixson (1976) explains that research grant funds are in shorter supply and experimenters who have been successful in the past are more likely to be funded again in the future. This may entice a researcher to falsify findings.

Public Pressure may lead to applied research fraud, particularly in the case of cancer research. Cancer is one of the leading causes of death in this country. Many tax dollars and donated funds have gone to research for curing cancer, but success has been limited to only certain types of cancer. Cancer researchers and research administrators may be pressured to mislead or to lie about successes in cancer research to maintain private donations and public funds going to cancer research.

PRESTIGE

> "(This) is not limited to younger people who are desirous of tenure. I think it is something that afflicts some of us old guys, too, in a very different way. Whereas our jobs aren't dependent on publications, something else is. And that something . . . I would call collegial self-esteem" (Aronson, 1981: 3).

The individual may feel pressured to publish as much, if not more, than before. If having difficulty keeping up with this publication regimen, one may be tempted to engage in research fraud.

DANGER OF FALSE FINDINGS

It is obvious that much research is conducted to guide decisions regarding such things as public policy, industrial development, medical treatment, and education. Even basic research, performed only for the sake of acquiring knowledge, is frequently applied to solve immediate problems and to inform major decision-making. If the findings are false, there can be tragic consequences when they are applied.

Evaluations that fraudulently find a social action program effective when it is not, can

harm recipients of the program and the taxpayers who support the program. The recipients of the services of the program may not be having their needs met to a level that they are due. Nevertheless, the evaluation researcher overlooks or ignores the inadequacies of the program. The taxpayer is victimized by tax dollars being wasted on an ineffective program.

Dangers of fraud in medical research are perhaps the most salient. Weinstein (1979: 648) reports that a major pharaceutical manufacturer, G.D. Searle and Company, has been charged by the Food and Drug Administration ". . . with falsifying the scientific data upon which claims of the safety of the two drugs and an artificial sweetener were based."

In recent years, the public has become more skeptical of scientific findings. Nuclear accidents and aircraft malfunctions have made the public hesitant to accept scientific reports of the safety of these developments. The resurgence of fundamentalist religious beliefs has brought chanllenges to the scientific evolutionary theory of human origin. Efforts have been made to replace it with creationism or to provide equal reprsentation of both in the classroom (*Time*, 1981b, 1982).

Research fraud reduces public respect for the findings of scientific research. The individual may accept a nonscientific practitioner's word over that of a scientific practitioner because of the distrust in science.

> "In regard to health, the various nostrums and devices can do no good at best, but may in fact be harmful to the victim's health . . . More often, the use of such materials serves to delay the victim from abtaining legitimate medical attention. In the case of patients with cancer, this delay could be fatal" (Coe, 1978; 242).

Even in non-life-threatening instances, excessive distrust of scientific findings can be problematic. For example, in the early-1950's, anti-science attitudes resulted in long delays of fluoridation of community water supplies. This, in turn, resulted in unnecessarily high rates of dental cavities, particularly among children (Kirscht & Knutson, 1963; Sapolsky, 1969).

MISLED THEORIES

Theory construction is often a cumulative effort, as new theories are developed from earlier theories that have been verified by research endeavors. If the research performed to verify the earlier theory is found to have been faked, later theoris may be left meaningless. Scientific resources are wasted when so much theoretical development must be reworked or rejected. In the 41 years until the fraud was discovered, many anthropologists and biologists used the "Piltdown Man" fossils as a verified basis for their theories. Contemporary psychologists Arthur Jensen and Richard Herrnstein had based their controversial theories favoring the importance of heredity on intelligence on Burt's theory. Their theories are clearly in question, because of the discovery of Burt's fraud (Taylor, 1980; Van Den Berghe, 1981).

RECOMMENDATIONS

1) Evaluation research fraud may be combatted by having social action programs evaluated by outside evaluaters and reducing dependence upon self-studies. These evaluators must be competent and with no conflicts of interest so they can report objective and accurate evaluations.

2) While the publish-or-perish pressure was cited as a factor contributing to research fraud, it would be simplistic to recommend the elimination of publication as a criterion for tenure and promotion. Some pressure for publication may be needed to promote research and the search for new knowledge in scientific disciplines.

However, the pressure may be too great. It may be advisable for promotion and tenure considerations, to examine other worthy criteria, such as teaching performance, to reduce the push for publication that may lead to research fraud.

3) Positive findings funded by research grants must be scrutinized more closely by grantspersons. Those evaluating the research must be made aware of the incentives for fraud that are unintentionally reinforced by the manner in which research grants are funded and renewed.

4) Finally, the public needs to be educated on just what science can and cannot do. Some of the demands the public places on scientists

are not realistic. Citizens need to be made aware that donations of large amounts of money do not guarantee immediate, effective results.

REFERENCES

Aronson, Elliot, 1981. "Research in social psychology as a leap of faith." Pp. 3-9 in Elliot Aronson (ed.), Readings About the Social Animal. San Francisco: Freeman.

Associated Press, 1981. "*Post* reporter surrenders Pulitzer." April 16.

Bonjean, Charles M., 1980. "On the costs of publishing evaluation research." Social Science Qtrly 61: 329-332.

Caplow, Theodore, Reece McGee, 1965. The Academic Marketplace. Garden City, New York: Doubleday.

Coe, Rodney, 1978. Sociology of Medicine. New York: McGraw-Hill.

Fagan, Brian M., 1978. In the Beginning. Boston: Little, Brown.

Hearnshaw, L.S., 1979. Cyril Burt: Psychologist. Ithaca, N.Y.: Cornell U Press.

Hixson, Joseph, 1976. The Patchwork Mouse. Garden City, New York: Doubleday.

Kirscht, J.P., A.L. Knutson, 1963. "Fluoridation and the 'threat' of science." J Health & Human Behavior 4: 129-135.

Manheim, Henry L., 1977. Sociological Research: Philosophy and Methods. Homewood, Illinois: Dorsey.

Mullins, Carolyn J., 1977. A Guide to Writing and Publishing in the Social and Behavioral Sciences. New York: Wiley.

Musheno, M.C., J. Levine, D. Palumbo, 1978. "Television surveillance and crime prevention: evaluating an attempt to create defensible space in public housing." Social Science Qtrly 58: 647-656.

———, 1980. "The impact of evaluation reserach: a reply to Newman." Social Science Qtrly 61: 325-327.

Newman, Oscar, 1980. "The repercussions of dishonesty in research reporting." Social Science Qtrly 61: 322-325.

Sapolsky, H.M., 1969. "The fluoridation controversy: an alternative explanation." Public Opinion Qtrly. 33: 240-248.

Southern Sociologist, 1979. "Report of the Publications Committee." Volume 10, Number 4: 12.

St. George, Arthur, Patrick H. McNamara, 1979. "Filthy pictures' or the case of the fraudulent social scientist: unmasking the phony expert." American Sociologist 14: 142-149.

Stoddard, Ellwyn A., 1974. "The consultant sociologist in action programs." Pp. 229-241 in Arthur B. Shostak (ed.), Putting Sociology to Work. New York: David McKay.

Taylor, Howard F., 1980. The I.Q. Game: A Methodological Inquirey Into the Heredity-Environment Contropversy. New Brunswick, New Jersey: Rutgers University Press.

Time

1974a "The psychic scandal." P. 67-68. August 26.

1974b "The S.K.I. affair (continued)." P. 60. June 3.

1980 "The holy hoaxer." July 28.

1981b "Putting Darwin back in the dock." P. 80. March 16.

1982 "Darwin wins." P. 63. January 18.

Van Den Berghe, Pierre L., 1981. Book review of Bias in Mental Testing, by Arthur R. Jensen. Social Forces 59: 837-840.

Wade, Nicholas, 1976. "I.Q. and heredity; suspicion of fraud beclouds classic experiment." Science 194: 916-919.

Weiner, J.S., 1955. The Piltdown Forgery. London: Owford U Press.

Weinstein, Deena, 1979. "Fraud in science." Social Science Quarterly 59: 639-652.