B120 Essential Context and Concerns About the "Context Effect"

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After attending this presentation, attendees become more aware of the "context effect" and the need to incorporate case context into problem definition while minimizing the chance of bias.

This presentation will impact the forensic community and/or humanity by increasing awareness of the perils of the so-called "context effect" while understanding the need for case context in framing relevant scientific questions for case solutions in criminalistics.

Science is a human endeavor. As such, human failings can corrupt it. Some highly publicized examples of error, malfeasance, and fraud have been seen in many branches of science. Despite these examples, science has been described as self-correcting. It is clearly self-correcting when it is directed to developing knowledge about the universe as the result of the efforts of many individual scientists expended over an extended period of time. This built-in self-correction alone may suffice under such circumstances. However, for dealing with applications of science to shorter-term inquiries, the inherent self-correcting nature of science cannot be relied on exclusively. It needs to be supplemented and augmented by additional correction mechanisms and safeguards. Special attention must be given to these. One concern is investigator bias, which may go unrecognized by an otherwise qualified and well- meaning scientific investigator. The bias may be the result of long-held beliefs or the result of recently acquired information that is peripheral to the scientific inquiry. The fact that the bias may not be recognized by its possessor makes it particularly insidious and difficult to deal with. Perhaps bias cannot be eliminated from affecting human thought and reasoning, but steps can be taken to try to eliminate its undesirable effects. This is certainly important in criminalistics where the effects of such bias can be particularly pernicious and may affect the life and liberty of others and have a negative impact on the quality of justice.

In criminalistics one potential source of such bias is extra- evidential knowledge of case details or case context and has been called the *context effect*. Some commentators[1] have suggested that forensic scientists or criminalists should work blind – *i.e.,* that they be isolated from knowledge of details of the case. Although such a suggested solution to the problem is well intended, it reveals a misunderstanding concerning the nature of criminalistics and the analysis and interpretation of physical evidence. It assumes that the criminalist is operating as a technician carrying out testing to address simple predefined questions. It avoids the issue as to how the analytical problems to be addressed are defined and circumscribed. The tacit assumption seems to be that this is the role of the non-scientist investigator. Unfortunately, too often this is the way some laboratory systems operate even when consideration has not been given to efforts to address the context effect. The suggestion to combat the context effect by having the scientist work blind can only serve to exacerbate a bad situation where evidence recognition, case solutions, and ultimately justice may suffer from a lack of early scientific involvement. There is a failure to understand that framing questions to be addressed is one of the most challenging and critical aspects of science. Criminalistics is no exception. Scientific problems in criminalistics need to be defined and addressed by scientists. With respect to specific case problems, this requires context knowledge.[2,3] Thus, the apparent dilemma. How can the effects of possible bias arising from knowledge of context be prevented while at the same time knowledge of context is taken advantage of in informing the questions to be addressed? Putting blinders on the scientist while conducting casework is not the solution. There are alternatives. These need to be strengthened and applied more widely. Several in combination can allow the best of both worlds. All start with scientific leadership and the cultivation of a healthy scientific climate in the laboratory system. In such a laboratory system the role of the scientist in following the scientific method and pursuing scientific truth is made explicit. Here it is made clear that one's obligation is to the science, not one side or the other in a case. With frequent discussion, this is internalized and becomes a source of pride for the individual scientists. Hypotheses are tested by making strenuous efforts to disprove them. Alternate hypotheses are entertained and given full consideration in this process of hypothesis testing and evaluation. The quality of the scientific work and independence of the scientist is also aided by formalized quality assurance procedures of case review and proficiency testing. These are incorporated in laboratory accreditation and individual certification programs.

In the course of casework for both prosecution and defense the authors have had the opportunity to study and critique the work product of individual scientists and of laboratories in detail. Scientists and laboratories that are able to resist external influences and pressures do exist. They can and must become the norm.

References:

1 Risinger, D.M., Saks, M.J., Rosenthal, R., and Thompson, W., "The *Daubert/Kumho* Implications of Observer Effects in Forensic Science: Hidden Problems of Expectation and Suggestion," ***University of California Law Review*** 90, 2002, pp. 1-56.

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2 De Forest, P.R., "Recapturing the Essence of Criminalistics", Founders Lecture, California Association of Criminalists, ***Science and Justice***, Vol. ***39***, July-September, 1999, pp. 196-208.

3 De Forest, P.R., "Crime Scene Investigation", in ***Encyclopedia of Law Enforcement***, L. Sullivan, ed., Sage Publications, Thousand Oaks, CA, 2005, pp. 111-116.

Context Effect, Context in Framing Scientific Questions, Problem Solving

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