

Expert Advice on the Human Factors Witness

People sometimes do strange things—though strange as they may be, these things are often foreseeable when given a little thought. Learned Professor David Liebson, instructing first-year law students years ago on torts, challenged us to look beyond the obvious cause of an injury, and to search for the legal or proximate cause of that injury. Whether or not an injury was “reasonably foreseeable” was then, and remains today, a focus of the quest to attribute liability in tort. We have to consider how people will interact with particular products or in situations that may lead to harm. In many cases, expertise in the area of human factors science can be used both offensively and defensively in the pursuit of a recovery for the injured client.



By Timothy D. Lange

Human Factors Studies Explained

The field of human factors is also known as ergonomics. The International Ergonomics Society (IES) broadly defines ergonomics (or human factors) as the scientific discipline concerned with the understanding of interactions among humans and other elements of a system, and the profession that applies theory, principles, data, and other methods to design in order to optimize human well-being and overall system performance.¹ Stated another way, these experts study the predictability of human behavior when interacting with machines, systems, or other products. Making the machine, system or other product safer and more compatible for people is an ultimate goal for this science.

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There are many different areas of specialization under the umbrella of human factors studies. The IES acknowledges several categories of study, with two of these areas having many applications relevant to the practice of injury law.

Physical Ergonomics

This specialty is concerned with human anatomical, anthropometric (which is the study of human body measurements), physiological and biomechanical characteristics as they relate to physical activity. Issues involving working postures, materials handling, repetitive movements, work-related musculoskeletal disorders, workplace layout, safety and health are addressed in this field.

Cognitive Ergonomics

This topic is concerned with mental processes, such as perception, memory, reasoning, and motor response, as they affect interactions among humans and other elements of a system. Issues covered in this field include mental workload, decision making, skilled performance, human-computer interaction, human reliability, work stress and training as these may relate to human-system design.

How Can a Human Factors Expert Contribute to Your Case

Human factors issues can arise in many different types of cases. Human factors experts are able to consider mechanical and environmental demands as they relate to variable human capabilities, such as hearing discrimination, visual acuity, eye-hand coordination, reaction time to warning signals, manual dexterity, temperature sensitivity, reading speed, human function under stress, memory, reading comprehension, and others².

While this list is in no way exhaustive, testimony from a human factors practitioner may assist often in the following type cases.

Failure to Warn Cases

Testimony concerning specific warnings and instructions given, or that should have been given, to the operator of a product may help to impose liability on the manufacturer of a defective product. A product may be defective for lacking a necessary warning or instruction. It may also be defective when the warnings provided by the manufacturer are inadequate and ineffective, whether because of the wording, placement or location of the warning (including failure to include a permanent warning of a danger if instructions for use may not ultimately reach an end-user), or for failing to use appropriate symbols or colors.

Defective Design Cases

Human factors experts examine how people behave in particular work environments and relative to how machines function. From such analysis, the expert may be able to opine whether a particular design of a machine yielded an otherwise preventable injury. Considerations such as where to place controls, what limitations the machine will impose on the operator's vision or operator visibility, the availability and/or feasibility of safety mechanisms, tamper-resistance of safety mechanisms, and other factors may result in a viable theory of liability against the designer or manufacturer of the machine.

Avoiding Attributive Fault for Comparative Negligence

Human factors testimony may also minimize exposure from comparative fault apportionment against the client. This expert may be able to explain why a client acted as he or she did, humanizing the client while showing how the client's behavior should or could have been reasonably foreseen. For instance, if a safety de-

vice on a machine makes the machine difficult or uncomfortable for use and can be overridden, this expert may help to explain why the client operated the injury-producing machine without using the safety device. We, and our juries, all know that we are fallible and make mistakes. When a manufacturer asserts a defense of misuse of a product, this expert may be able to counter that the product was unsafe because the misuse was foreseeable. This expert may also be able to explain that products should be designed with this knowledge in mind, and that manufacturers of unreasonably dangerous products should be charged with minimizing avoidable harm to those who make reasonably foreseeable mistakes or errors in judgment.

Careful Consideration of Qualifications is Required

Qualifications for this expert can be especially case specific. Practitioners within this field generally have backgrounds mixing several disciplines. In light of *Daubert* and its progeny, careful consideration must be taken to withstand a challenge as to the admissibility of this expert's testimony. There is a discomfiting lot of published cases upholding the exclusion of human factors expert witness testimony based on *Daubert* challenges. Credentials such as involvement with the IES, or the Human Factors and Ergonomics Society may bolster the chance of getting this important testimony to the jury. Each of these organizations has many different sections and specialties, and the Web sites endnoted provide a resource for selecting and locating experts who may assist in your case. Membership in these organizations, coupled with credentials in the specific science in issue in your case (for instance the combination of an advanced degree

in human psychology along with a degree in a particular field of engineering applicable to the design of a machine in issue) may be most helpful.

As always when engaging an expert, be advised to seek references from fellow KATA members or other counsel having previously worked with the expert. Use KATA's List-Serv to network and discover helpful information about the person under consideration. Request references and background information on any expert with whom you are interested in working. Find out if the expert under consideration has ever had his or her testimony excluded. Confirm the pertinent schedule of fees and document terms concerning payment and billing before engagement. Clearly convey your case timetables with respect to discovery and trial, and leave ample time for the scheduling and preparation of this expert for his or her discovery and trial depositions. Remember, experts can make or break your case. Choose wisely!

- 1 The International Ergonomics Association maintains a Web presence at www.iea.cc. Information for this article was gathered from this resource. Material was also gathered from the Human Factors and Ergonomics Society's Web site at www.hfes.org.
- 2 Using the Human Factors Expert in Litigation - 40 Am Jur Trials 629, citing Fowler, Human Factors Analysis, 10 Trial 53, 55 (Nov/Dec 1974). This is an excellent primer for anyone considering employing a Human Factors expert.

