

Conclusions, Opinions and Decisions

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There is a lot of confusion surrounding the terms conclusion, opinions and decisions. Those performing a scientific analysis *draft conclusions*, while the US legal system allows for *opinion testimony*. Should the term opinion be used in the forensic sciences for consistency, or does that create confusion?

Conclusions are a way to express views that are reasoned judgements based on information or data. Conclusions are testable and can be verified to be correct or incorrect, such as in casework or on tests.

Opinions are a way to express views that are based on feelings, beliefs, preferences, and/or value judgements, not necessarily based on data or information. Opinions are not verifiable; an opinion may change but that does not mean the initial opinion was wrong, it was simply the opinion held at that time. Others may accept or reject an opinion, but opinions cannot be judged as correct or incorrect.

Confusion results because the definitions of both include the term judgement, however, 'judgement' can be a reasoned judgement or a value judgement. Reasoned judgements are based on information, while value judgements are based on feelings.

Confusion may also exist because many conclusions can be expressed as opinions. Example: "I think the world is flat" or "I think $3+3=5$ " are conclusions (statements that are verifiable) but when they are framed with the words, 'I think', then they sound like opinions. In these examples, both conclusions are incorrect; however, they are still conclusions since they can be tested for accuracy.

Labeling *scientific conclusions* as *opinions* in casework allows for differences of opinions, which creates the additional and unnecessary procedure of conflict resolution. Justifying the use of the word *opinion* by citing Federal Rules of Evidence is then counterproductive. It also creates an environment where some practitioners will never feel comfortable arriving at or verifying some conclusions.

For a testing program, test questions and answers need to be validated to show that the answers adhere to the criteria used so they can be judged to be correct or incorrect. Competency tests should not determine if the practitioner can arrive at the ground truth; tests need to be designed to see if the practitioner can apply the desired method and apply the criteria given for conclusions. Obviously, the method needs to be specific enough to arrive at a conclusion. Leaps of faith within the method cannot be allowed. If there are leaps of faith, then the method is not truly a scientific method.

The word *decision* throws another variable into how findings are articulated. Decisions are a choice or preference that cannot be judged to be correct or incorrect (like an opinion). For instance, whether features in a chart are plotted with green or red dots may be at the discretion of a practitioner. If so, then the color choice is their decision, there is no judgement of correctness. Using the terms "opinion" and "decision" in testimony may be allowed but they do not conform with science.

Solution: For those that are against using the term *conclusion*, for whatever reason, perhaps a compromise is to use a definition rather than the label, 'a reasoned judgement, based on verifiable data'. This would prevent promoting unverifiable subjective beliefs that are inherently associated with the word *opinion*.



There are in fact two things,
science and opinion;
the former begets knowledge,
the latter ignorance
-Hippocrates (460-377 BCE)

