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Reply to Response to Vacuous standards - Subversion of the OSAC standards-development process

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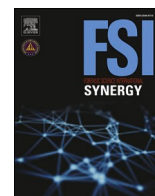
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ABSTRACT

This Letter to the Editor is a reply to Mohammed et al. (2021) <https://doi.org/10.1016/j.fsisyn.2021.100145>, which in turn is a response to Morrison et al. (2020) “Vacuous standards – subversion of the OSAC standards-development process” <https://doi.org/10.1016/j.fsisyn.2020.06.005>.

Dear Editor:

Mohammed et al. [1] was published as a response to Morrison et al. [2], but it does not refute any of the claims or arguments presented in Morrison et al. [2]. The concerns expressed in Morrison et al. [2] therefore still stand. All the authors of the present letter to the editor endorse the content of Morrison et al. [2].

Morrison et al. [2] raised concerns about vacuous standards, i.e., standards that are characterized by one or more of the following: they state few requirements; the requirements they do state are vague; compliance with their stated requirements can be achieved with little effort; compliance with their stated requirements would not be sufficient to lead to scientifically valid results. Rather than leading to improvements in the quality of forensic-science practice, vacuous standards facilitate the continuation of poor practice. If forensic practitioners or forensic laboratories are challenged with respect to their practices, they can respond that they are following published standards. If those standards do nothing to ensure good practice, then a court that does not know to enquire further will be misled.

Morrison et al. [2] discussed two examples of vacuous standards, one on quality assurance programs (ANSI/ASB 030 [3]) and the other on method validation (ANSI/ASB 072 [4]), and gave more attention to the latter. Drawing on the U.S. President’s Council of Advisors on Science and Technology’s report on ensuring scientific validity of feature-comparison methods [5], on the England & Wales Forensic Science Regulator’s guidance on validation [6],¹ and on the Australia & New Zealand National Institute of Forensic Science’s guideline on empirical study design [8], Morrison et al. [2] listed a number of requirements that we believe are essential in order for a standard on validation of forensic-science methods to be fit for purpose. None of those requirements were included in ANSI/ASB 072.

We have received comments from some who believed that Morrison et al. [2] was an attack on the Organization of Scientific Area Committees for Forensic Science (OSAC). This interpretation is incorrect. As stated in Morrison et al. [2]: “The purpose of OSAC is clearly to improve the scientific validity of forensic practice, and we fully support this

goal.” We continue to support OSAC and its goal. Morrison et al. [2] was written to call attention to outcomes that do not advance this goal, and to encourage efforts to improve standards-development processes so as to avoid the publication of standards that are not fit for purpose. Morrison et al. [2] was not intended to be an attack on the Academy Standards Board of the American Academy of Forensic Sciences (ASB-AAFS) either. ANSI/ASB 030 and ANSI/ASB 072 happened to be chosen as examples because, at the time Morrison et al. [2] was being written, OSAC was seeking input on whether those standards should be added to the OSAC Registry of Standards.

We have also received comments suggesting that the concerns raised in Morrison et al. [2] should have been raised exclusively internally to OSAC and ASB-AAFS. OSAC’s standards-development process and the published ASB standards were used as concrete examples of a more widespread problem that has serious implications for the justice system and for the future of forensic-science practice. This is a problem that absolutely needs to be brought to public attention, both to alert courts to the problem and to encourage positive reforms in forensic-science practice.

Mohammed et al. [1] did not address any of the concerns of Morrison et al. [2] regarding the *content* of standards. Instead it described the *process* by which ASB-AAFS develops standards upon receiving documents from OSAC. This information is irrelevant to a discussion as to whether the resulting standards are fit for purpose. It would be relevant from a quality-management perspective, i.e., if one were attempting to ascertain whether the publication of vacuous standards was due to flaws in the process, and, if so, attempting to amend the process in order to reduce the probability of this problem reoccurring. This does not, however, appear to have been the reason for presenting the information about the ASB-AAFS process – discussion of quality management is absent from Mohammed et al. [1].

Mohammed et al. [1] appears to have great faith that “the consensus process” “results in more robust, useful, and perhaps even more scientifically advanced standards.” The argument appears to be that following the consensus process is a sufficient condition for the resulting

¹ Since Morrison et al. [2] was written, Issue 2 of the Regulator’s guidance on validation has been published [7].

standards to be fit for purpose. This argument is backward. A standard or guideline is not scientifically valid because it was developed by a consensus process. A standard or guideline developed by consensus is only valid if the consensus has emerged as a result of applying scientifically-valid principles.

Biedermann & Kotsoglou [9] states:

[Replacing] ground truth in controlled experiments (e.g., validation studies or proficiency tests) ... by some sort of inherently unequivocal forensic wisdom that takes the form of either a *Fryeesque*-consensus among independent experts, or a majority vote ... manages to miss the basic lesson from *Daubert*: consensus in the respective community is simply a surface feature of established and robust protocols and methods, not their core feature. Methods are not sound *when* or *because* experts agree on them. On the contrary, there is scientific consensus when these methods exhibit particular levels of performance. Arguing otherwise confuses cause and effect by reducing scientific status and reliability to consensus or decision-making rules (e.g. majority vote) rather than to methodological features. (emphasis in original)

President's Council of Advisors on Science and Technology [5] stated:

expressions of *consensus* among practitioners about the accuracy of their field is no substitute for error rates estimated from relevant studies. (p. 6, emphasis in original)

Morrison et al. [2] argued that ANSI/ASB 030 and ANSI/ASB 072 are examples of vacuous standards. If one accepts that argument, then ANSI/ASB 030 and ANSI/ASB 072 constitute evidence that following a consensus process is not a sufficient condition for the resulting standards to be fit for purpose. Whether these particular standards are not fit for purpose because of a failure to properly follow existing standards-development procedures, because of some problem with the existing procedures themselves, or for some other reason, we do not know. A quality-management process would seek to determine the cause of undesirable results, and implement changes to reduce the probability of their reoccurrence.

The aim in writing and publishing standards for forensic science is to improve the practice of forensic science. Standards are not a panacea, but they are an important tool for improving forensic-science practice. Writing and publishing vacuous standards subverts that aim. Particularly insidious are vacuous validation standards, because the U.S. Supreme Court's ruling in *Daubert* [10] identified "appropriate validation" (p. 590) and "the known or potential rate of error [of a technique] ... and the existence and maintenance of standards controlling the technique's operation" (p. 594)² as indicia of *scientific validity* (which it equated with *evidential reliability*), and advised lower courts to consider these indicia when deciding whether scientific testimony or evidence is admissible.

In discussing the meaning of *Daubert*, Kaye et al. [13] §8.3.2c states:

For a method-defining standard to contribute positively to admissibility decisions, it must avoid the vice of vagueness... An appealing title, a complicated flow chart (sometimes called a "process map"), a kitchen-sink bibliography (with no specific connections to the body of the standard), and a lengthy sequence of ornately numbered sections do not ensure the necessary specificity of the crucial steps.

² Ironically, *Daubert* then indirectly cited a "standard" on the auditory-spectrographic approach to forensic voice comparison which we consider to be vacuous. Although seemingly detailed, at crucial steps its requirements were vague, and compliance with its requirements did not lead to scientifically valid results. In *Angleton* [11], admissibility of the auditory-spectrographic approach was considered under *Daubert*. It was ruled inadmissible, and there are no reported cases in which it has survived a *Daubert* challenge since. For extensive discussion, see Morrison & Thompson [12].

Thus, it has been argued that many of the identification methods in common use are devoid of such controlling standards. Instead, published standards contain circular or vacuous statements about the extent to which two samples must display similarities for a criminalist to conclude that they are (or simply could be) from the same source. Some courts seem to recognize that some "standards" do nothing to confine discretion, but others are impressed with such unedifying directives as "Evaluate the similarities, differences, and limitations. Determine their significance individually and in combination" and "Form a conclusion based on results of the above analyses, comparisons, and evaluations."

We would encourage courts not to accept at face value claims of scientific validity based on the fact that published standards have been followed. We would encourage courts to enquire further so as to ascertain whether those standards are fit for purpose. We would also encourage developers and publishers of forensic-science standards to monitor their processes, and, if necessary, to revise those processes so as to reduce the probability that they will produce forensic-science standards that are not fit for purpose.

Author contributions

Geoffrey Stewart Morrison: Conceptualization, Writing - Original Draft, Writing - Review & Editing. **All other authors:** Conceptualization, Writing - Review & Editing.

Disclaimer

All opinions expressed in the present letter to the editor are those of the authors as individuals. Unless explicitly stated otherwise, nothing in the present paper should be construed as representing the policies or positions of any organizations with which the authors are associated.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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