J5 The Future State of Handwriting Examinations: A Roadmap to Integrate the Latest Measurement Science and Statistics

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After attending this presentation, attendees will understand some of the key milestones that must be accomplished for the discipline to incorporate the latest advances in measurement science and statistics into the handwriting examination process.

This presentation will impact the forensic science community by summarizing the results of a two-day conference on measurement science and standards in forensic handwriting analysis where key thought leaders discussed the future of the discipline, the barriers of achieving that future, and a roadmap for the way forward.

In 2009, the National Academy of Sciences Report, *Strengthening Forensic Science in the United States – A Path Forward*, noted that "the scientific basis for handwriting comparisons needs to be strengthened."[1] The same report also noted that recent studies have increased the understanding of the individuality and consistency of handwriting and computer studies suggesting there may be a scientific basis for handwriting comparisons. Incorporating the latest quantitative assessment techniques to further enhance the discipline is not as easy as just ordering a software program from a website.

The National Institute of Standards and Technology (NIST) hosted the Measurement Science and Standards in Forensic Handwriting Analysis Conference that took place on June 4-5, 2013, in Gaithersburg, MD. Presenters discussed the current state of forensic handwriting analysis and also shared the latest research advancements in measurement science and quantitative analysis capabilities in the discipline. Many groups collaborated with NIST to design this conference which included a facilitated session with all attendees to discuss what the future state of handwriting analysis looks like, the barriers to achieving this future state, and a general roadmap on how to get there.

The participants noted that the future state of the discipline will incorporate the use of more quantitative analysis tools during the handwriting examination process to assess and compare handwriting characteristics. Forensic handwriting examiners will employ the use of statistical models to explain the significance of their conclusions based on the uniqueness of observed and measured handwriting characteristics. However, there is considerable debate over whether these statistics should be presented to a jury and concern about how attorneys will use this information. In the future, more research involving the use of quantitative methods for examinations and statistics will be published in peer-reviewed journals which will improve the understanding of these advancements and validate examination methods. There will be a more systematic way to convert research into best practices that examiners can incorporate into their standard operating procedures. Previously established standards will be updated or validated as new technology is used to test longstanding practices.

Additional items envisioned in the future state of the discipline will be presented along with the barriers that must be addressed and next steps that should be taken to move forward. A series of recommendations to further the discipline will be presented.

Reference:

1. National Research Council. *Strengthening Forensic Science in the United States: A Path Forward*. Washington, DC: The National Academies Press, 2009

Measurement Science, Handwriting Examinations, Statistics