J28 On the Forensic Value of Non-Original Signatures on Travel and Identity Documents

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After attending this presentation, attendees will have a better appreciation of the widespread use of non-original signatures as a security feature, including its limitations.

This presentation will impact the forensic science community by alerting policy makers and designers of secure travel and identity documents by highlighting the limitations of a common security feature.

The universal function of a signature is to provide evidence of: (1) the provenance of a document; or, (2) consent. Forensic document examiners are routinely called upon to analyze signatures for the purpose of determining authorship. In recent years, there has been a trend in the production of travel and identity documents toward inclusion of an image of the document-holder's signature; typically captured from a digital scan of an original ink-on-paper signature from the application document. Although promoted as a security feature, this image is more often than not a liability rather than an added feature of protection or personalization on the card.

There are many elements of a signature that are evaluated in the course of a forensic examination. Features such as the relative size, slope, and the ratio of glyph size can be assessed from an image or copy of a document, provided that the copy or image quality is not overly degraded. There are far more features that require viewing with the aid of magnification in order to properly assess. These features include line quality, tremor or hesitation, direction and sequence of stroke, retouching, pen stops or lifts, and relative speed. Even the evaluation of glyph design often requires some magnification.

National identity cards, passports, drivers' licenses, and health cards all are examples of identity documents that include some level of personalization. Typically, each of these documents includes a visible, printed image of a signature, and in recent years this image has been reproduced with very poor quality. The limitations on quality are not with technology since micro-printing on many different media and using various inking techniques is commonplace. The limitation is with popular understanding of the use and abuse of the signature.

As the evolution of travel/identity documents progressed from original ink on substrate signatures to digital reproductions, the actual affect of having a signature printed on an identity document has become a liability. These documents cannot be used to forensically compare signatures with legitimate, known sample signatures for the simple reason that so many elements critical to the evaluation of the signature are not present. They also may not be able to be used as legitimate, known samples of an individual's signature for that same reason.

Furthermore some travel/identity document issuing processes allow for alterations to genuine signatures. When images are resized to fit into a predetermined window or space (e.g., under a photograph) they are often compressed along either their *x* or *y* axis without respect to the original aspect ratio. Some signatures are cropped so that portions are deleted or removed in order to fit into this artificially constrained space. The resultant signature image does not even display those superficial features of a signature such as size and ratio that are relied upon by primary validators at ports of entry, for example. The signature portion of many travel/identity documents is unable to meet the requirement for validation to which similar on-board data such as biographical information and photographs are routinely subjected.

The goal of this presentation is to highlight the issues and limitations surrounding the forensic examination of these signature images from travel/identity documents.

Travel Document, Identity Document, Signature

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