



Forensic handwriting examiners' opinions on the process of production of disguised and simulated signatures

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ABSTRACT

Large-scale blind testing of forensic handwriting examiners (FHEs) has shown that authorship opinions on disguised and simulated signatures attract higher misleading and inconclusive rates than genuine signatures do. To test whether this is due to the failure of FHEs to detect the indicators of disguise/simulation behaviours we examined their opinions regarding the 'process of production' (which in this case was a choice between written naturally or written using a disguise/simulation strategy) of the questioned disguised and simulated signatures in blinded skill testing trials. The relationship between their process opinions and authorship opinions is then assessed. It was found that the majority of the inconclusive authorship opinions for both disguised and simulated signatures had a correct process opinion (707 of 1241, 57.0% for disguised; 3838 of 4368, 87.9% for simulated), with only 7.3% (90 of 1241) of the disguised and 0.85% (37 of 4368) of the simulated signatures exhibiting incorrect process opinions. For the total misleading authorship opinions relating to disguised signatures, the majority of the process opinions were correct (167 of 241, 69.3%) indicating that a disguise/simulation process was detected, but misinterpreted as being by another writer. These results show the usefulness of FHEs offering a first stage simulation/disguise process opinion without going on to form an opinion on authorship, as the support for the proposition that a signature is something other than genuine may be, in itself, of strong evidential value.

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1. Introduction

Experts have been offering opinions on the authorship of questioned signatures in courts for over 100 years [1]. Modern-day forensic handwriting examiners (FHEs) learn the skills required to examine and compare handwriting features primarily from mentor training, educational workshops, traditional textbooks [1–6], journal articles, proficiency tests and practical experience examining signatures. However, it is only in the past 20 years, since the publication of a series of articles [7,8] questioning the tenets of the field, that there has been a move towards characterizing the purported skill of forensic handwriting examiners. Past studies [9–12] have compared FHEs' opinions with those of laypeople and found that FHEs do possess expertise in relation to expressing opinions of authorship of questioned signatures. The nature of the

expertise lies in the significantly lower rate of misleading (erroneous) opinions expressed by FHEs as compared to laypeople. However, recent research has identified some problem areas in FHEs' skill, these being simulated and disguised writing types [13]. These authors show that FHEs are markedly more conservative expressing authorship opinions on questioned disguised and simulated signatures compared with opinions on questioned genuine signatures. In addition, authorship opinions on questioned disguised and simulated signatures attracted higher inconclusive rates and misleading scores than did the questioned genuine signature group. Thus the greatest source of FHEs' misleading and inconclusive authorship opinions were associated with questioned signatures where it would normally be expected that a combination of similar and dissimilar features would exist, when compared to the specimen signature group.

The misleading opinions, in the study reported by Found and Rogers [13] could have arisen from two sources in terms of the cognitive comparison processes. Firstly, the FHEs may have detected that there were dissimilar features associated with the disguise and/or simulated signatures and attributed the dissimilarities to the incorrect writing behaviour (i.e. simulation for disguised and vice versa). For example, an FHE may have detected

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Table 1
Number and type of responses submitted along with the number of specimen and questioned signatures and total number of opinions expressed by the group for the 2002–2005 trials.

Year	Analysed responses	Peer-reviewed responses	Individual responses	Specimen signatures	Questioned signatures	Total # of opinions
2002	34	13	21	9	200	6800
2003	39	13	26	5	199	7761
2004	19	6	13	16	100	1900
2005	29	5	24	15	100	2900

feature dissimilarities associated with a questioned disguised signature and attributed these to simulation behaviour and thereby conclude that the signature was not by the specimen writer. Alternately, an FHE may have detected feature dissimilarities associated with a questioned simulated signature and attributed these to disguise. This would result in the erroneous opinion that the signature was written by the specimen writer. Both of these decisions would result in misleading authorship opinions. Secondly, an FHE may not detect features in the questioned signature that were dissimilar to the specimen material, or even may consider that any dissimilarity is the product of natural variation in the signature rather than indicative of a disguise or simulation process. This approach would result in correct authorship opinions for questioned disguised signatures but misleading authorship opinions for questioned simulated signatures.

In this paper we attempt to explore the potential source of the misleading authorship opinions for the disguised and simulated signatures by relating FHEs' opinions on authorship with their opinions on the process of production of each questioned signature. These process opinions can be described as 'first stage' opinions, which inform the 'second stage' authorship opinion. The process opinions were requested of FHEs when filling out the trial answer booklets. FHEs were provided with three process opinion options: (1) there is evidence that the questioned signature under examination was naturally written, (2) there is evidence that the questioned signature is the product of a disguise or simulation process, or (3) the evidence did not clearly support either of these two propositions (inconclusive opinion). These 'first stage' opinions could then be compared to the misleading authorship opinions for the questioned disguised and simulated signatures. The source of the misleading authorship opinions could then be attributed to either FHEs detecting and misinterpreting the differences in writer behaviour, or to them not detecting any differences in the writer's behaviour in comparison to the specimen material. In this way the misleading authorship opinions can be further characterized on the basis of the FHEs' assessments of the first stage process of production of each of the questioned disguised and simulated signatures.

An analysis of the process opinions also allowed us to further explore whether the high inconclusive rates for authorship opinions on questioned disguised and simulated signatures resulted from examiners not detecting the indicators of the disguise/simulation process or whether they did detect the signs but were not prepared to opine whether the process was produced by the author of the specimens or by somebody else. This also provides an opportunity to assess the validity of any opinions regarding the process of production of questioned signatures that resulted in an inconclusive authorship opinion. This is important as a correct opinion that a questioned simulated signature is the product of either a disguise or simulation process (i.e. support for the proposition that a signature is something other than genuine) does provide potentially useful information in terms of the investigation of a case. That the FHE does not go on to form an authorship opinion regarding the signature does not detract from the evidential importance of the first stage opinion.

2. Methods

2.1. Participants

Results reported here are opinions of FHEs that were self-declared 'qualified' to give evidence regarding their opinions on the authorship of questioned handwriting and signatures. One trial was administered to participants each year for a 4-year period. Every participant received the same material at approximately the same time. The participants in any given year were not necessarily the same as in other trial years. Responses in the answer booklets submitted for assessment were a mixture of peer-reviewed (agreed opinions of two examiners) and individual responses. The number of peer-reviewed and individual responses provided for each of the four trials is presented in Table 1. One examiner giving single responses in each of the 2004 and 2005 trials did not give any opinions on the process of production of the questioned signatures. All process opinions were therefore recorded as inconclusive; however these results were excluded from the data for this study.

2.2. Materials

The trials were constructed according to the accepted process of comparing specimen (known) writings with a questioned writing sample. The rationale for the structure of the trial material, where repetitions of a single person's specimen signature is compared to multiple questioned signatures has been described [14]. The writer of each of the questioned samples was known to the experimenters but not to the participants. For each trial, the questioned samples were a random mixture of normal signatures written by the specimen writer, disguised signatures written by the specimen writer, and simulated signatures written by forgers freehand copying the feature characteristics of the specimen writer's signature. Within each trial, all writings were made using the same make of ballpoint pen and the same make of paper. The signatures were scanned at 600 dpi. For the 2002–2004 trials the scanned signatures were inkjet printed into a booklet. In 2005 the scanned signatures were reproduced photographically. Table 1 gives the number of specimen signatures and the total number of questioned signatures for each trial. The number of questioned genuine, disguised and simulated signatures for each of the trials is given in Table 2.

2.3. Procedure

FHEs were provided with either a sample booklet (with PDF files of the images on an included CD) or photographs, and an answer-recording booklet. Examiners were informed that the questioned samples were genuine, disguised or simulated and that the date range over which the specimen signatures were taken was around the time that the questioned samples were written. They were asked to compare each questioned signature with the specimen material and give their opinion on whether or not the questioned samples were written by the specimen writer (or whether they were unable to say) and whether each questioned signature was written naturally, simulated/disguised or whether the examiner was unable to say (i.e. a process opinion) by entering the appropriate code (a digit that was 1, 2, 3, 4 or 5 for authorship; and 1, 2 or 3 for process) in the answer booklet comprising boxes corresponding to each one of the questioned samples. FHEs were provided with the following definition of the opinion levels.

2.3.1. Authorship

The first digit in the answer code for each of the questioned signatures refers to the authorship opinion. This digit was a 1, 2, 3, 4 or 5. The levels examiners had to choose from were:

Table 2
Number of genuine, disguised and simulated signatures used in each of the 2002–2005 trials.

Year	Genuine signatures	Disguised signatures	Simulated signatures
2002	76	20	104
2003	120	22	57
2004	50	8	42
2005	20	9	71

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