Abstracts

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Relative Difficulty of Freehand Simulation of Four Proportional Elements in Arabic Signatures

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This article compares the success with which 901 Arabic writers were able to simulate 4 proportional elements—size, slant, baseline, and spacing—in 2 Arabic signatures. Significant differences in ease of simulation were found among all 4 elements: slant was significantly more successfully simulated than the other 3; baseline was significantly more successfully simulated than spacing or size; and spacing was significantly more successfully simulated than size. The order of ease of simulation was found to be slant > baseline > spacing > size. This similarity between Arabic and Roman script data raises the possibility that slant and baseline, and possibly all 4 elements, might show similar relative rankings in other cursive scripts.

The Determination of Authorship from a Homogenous Group of Writers

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Forensic document examiners may encounter challenges when examining specimens from homogeneous writing populations and may need to identify potential sources of errors when rendering conclusions of authorship on such writings. A research project was conducted in which samples of writing were obtained from 52 adult writers who grew up in the same neighborhood, were taught the same copybook style, at the same Catholic elementary school, by the same teachers, approximately 4 decades ago. The specimen writings were subsequently examined and compared by 49 forensic document examiners throughout the world. The examiners rendered conclusions of authorship on the writings and submitted their conclusions for evaluation of accuracy. The results of the study offered evidence to support that there is a high degree of inter-writer variation among writers, even in populations where the driving forces for variation were low; and among these homogeneous writing populations, forensic document examiners were able to extract features from the writing samples that enable them to attribute authorship. The study examined effects of certain factors such as examiner experience, geographic location of examiner, and length of the questioned documents and how these factors affected accuracy. The research addressed criticisms that earlier studies on the individuality of handwriting did not include populations from homogeneous writing communities and relied on computer analysis of handwriting rather than on human examiners.

Analysis of Bic Cristal Medium Ballpoint Pen Inks

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This work studies the ink composition of 26 BIC Cristal Medium ballpoint pens, 13 blue and 13 black, purchased from various countries around the world in 2008. The volatile components of these inks were studied by gas chromatography/mass spectrometry (GC/MS) preceded by a liquid-solid extraction, with the use of retention time locking (RTL) for the 1st time in the forensic field. The RTL tool assures reproducible retention times, and the realignment of the chromatograms assures rescaling of the time axis of the chromatogram. In order to determine the qualitative composition of dyes present in each ink, thin-layer chromatography (TLC) was used, followed by the identification of those colorants by liquid chromatography tandem mass spectrometry (LC/MS-MS). The study revealed that at least 2 different blue-ink formulations were used around the world in this period of time but that the formulation of the black inks was identical for all the studied pens. The differences found in the blue-ink formulations regard not only volatile components but also dyes. The great differences found in the concentration of the volatile component phenoxyethanol (PE) present in the 2 blue-ink formulations lead to important differences in the natural aging process of these 2 blue formulations as measured by the loss of the amount of PE against the time. The amount of PE varied depending on the BIC ink formulation between 221.9 μg and 84.7 μg per lineal centimeter of ink stroke 1 day after the ink was deposited on the paper.

Influence of Age, Gender and Handedness in Signature Imitation

James L. Hayes

This article studies the influence of age, gender, and handedness on the ability of student volunteers to simulate signatures. The students were enrolled in an introductory course in Hospitality, Tourism, and Event Management at the Metropolitan State College of Denver. The majority learned to write during the 1980s. The volunteers were provided genuine signatures by older writers who learned to write using the Palmer System. The simulations were done in 2 sessions, the 1st with no instructions on how to imitate a signature. A week later the same students were asked to repeat the exercise, but this time with some instructions in how to copy a signature. The students were given an incentive of earning extra points on their grade for good efforts.

The students' forgeries were then evaluated by a forensic document examiner and graded as to quality. In general, the students created very poor forgeries. The females performed slightly better than the males, particularly after instruction, but even those efforts were not very good.