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J8 Study on Hangul and Handwriting Identification Methods in Hangul

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After attending this presentation, attendees will understand how handwriting is a different position of characters with individuals, and how handwriting characteristics can be identified by comparing external shape.

This presentation will impact the forensic science community by demonstrating the alteration of individual handwriting, and how handwriting changes according to position of consonant.

Hangul is the name of the Korean alphabet that was invented in 1443 by several scholars at the order of the Great King Sejong of the Josun Dynasty. Hangul is a phonetic alphabet, not an ideograph as some may think it is. Hangul has 24 basic characters 14 basic consonantal characters and 10 basic vowel characters. Each Hangul syllable is composed of a syllable-initial consonantal character, a syllable-peak vowel character, and optionally a syllable-final consonantal character. In large part this is because the individual characters are not concatenated linearly to form words as Westerners are used to, but are grouped together to form two-dimensional representations of syllables, which are then arranged linearly to form words. According to the shape of the vowel and the existence of the bottom consonants, the type of Hangul character can be divided into six categories. The type of Hangul character can be divided into six categories. Six types are divided into horizontal character, vertical character and mixing character to use handwriting identification. In case of the alphanumeric characters, it is well known that some special conventions in order to differentiate intrinsically similar characters are used. For example, Ø ((slash) and 0 (zero)) in order to write 0 (zero) are used so that it can easily be separated from o (oh). The number of all legal Korean characters is 11,172 as described in Section 2. Even the number of the characters for the daily use is 2,350. Therefore, basic analysis is needed about the stroke and exact structure of Hangul. Hangul handwriting is composed by consonant and vowels combining horizontal character, vertical character and mixing character. Because handwriting is different position of character with individual, handwriting characteristic can be identified by comparing external shape. Consonant constituted more than 2-stroke characters is different stroke method from writer. Particularly, the characteristic of ‘ ’ (mi-eum), ‘ ’ (bi-eup), ‘ ’ (pi-eup), is observed with different general stroke method. The stroke angle often appears on vowels in handwriting characteristic. Stroke angle is a compared factor of handwriting identification in direction of stroke, finish method of curved parts. When words and phrases are composed, special change of handwriting and combining between handwriting are factors of handwriting identification.

This experiment was analyzed through various method followed by consonant position of the same person handwriting. First, handwriting characters was to classified by three types of classification systems and confirmed through handwriting physical character. Individual characters were analyzed statistically looking at spacing between words, variation in spacing between lines, variation in spacing between characters, number of angularity, number of corrections, number of tremor, etc.

In this study, the alteration of individual handwriting and handwriting change according to position of consonant is a foundation of objective estimation in handwriting identification.

Hangul, Handwriting Identification, the Alteration of Individual Handwriting