



Physical Anthropology Section – 2009

H62 The Importance of Morphological Traits in Facial Identification

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The goal of this presentation is to show the first results of a research project concerning visual identification for forensic purposes funded by the European Union (AGIS 2005) and involving the University of Dusseldorf, Milano and Vilnius.

This presentation will impact the forensic community by exposing the importance of facial morphological traits for personal identification.

Identification of the living is a complex procedure which is becoming more and more requested by judicial authorities (e.g., for individuals observed on video while they are perpetrating a crime). Forensic scientists are therefore frequently requested to identify faces, for example, to tell if a suspect can be identified from a picture based on facial morphology and characteristics. Literature shows that the use of facial indices may be extremely dangerous and lead to erroneous identifications, whereas the potential of simple facial morphology, for which several classifications exist (Interpol, Vanezis, Assmann et al.), has never been studied in depth. This is mainly because no large scale study on the distribution of specific facial morphological traits has been previously performed.

The initial task was to verify the distribution and frequency among a European male population of about 1,000 individuals (20-30 years of age) of 43 specific facial traits (e.g., facial form, nose tip shape, philtrum shape, head shape, frontal height, eyebrow edge, lid axis, nasal root, labial breadth, etc. as in the Assmann et al. classification which contemplates a larger number of characteristics), and observe their discriminant value and inter and intra observer error. A group of over 900 faces was photographed and then the traits were classified with the Assmann atlas by recording the different shape of every one of the 43 relevant facial characteristics. This process was completed twice by the same observer and every face was also classified by two different observers, a layman and an expert. Results have shown the homogeneity of facial traits among the German, Italian and Lithuanian population, especially the head and chin shape, whereas the frontal and nasal characteristics seem to present larger variation. Classification of the results showed low interobserver and intraobserver errors for some traits but fairly large for others, for example the evaluation of chin and facial shape. A mean of 39% interobserver and 30% intraobserver error was recorded. Moreover, the high inter-individual variability was highlighted, with significant differences between analyses from the same individual and between laymen and experts. Although slight differences can be observed between the judgments from the same observer, the most relevant discordances were recorded between laymen and experts. These results highlight the importance of experience in analysis and interpretation of morphological traits. This study also shows some of the pitfalls concerning the mechanisms of facial identification through morphological facial traits. Although there is no common standardization, the use of references helps in the description of morphological traits. The description and judgment concerning the specific shape and appearance of each facial trait; however, remains a subjective process which may present significant differences between different observers.

The results have shown an interesting scenario of the respective frequencies of different facial traits which may be useful for identification. Nonetheless, the high subjectivity in face evaluation requires caution in considering morphological classification as a crucial tool in facial identification. These results, therefore, suggest a prudent approach to visual identification where classification of facial morphology may be useful in narrowing down a list of possible matches, but cannot be a model to prove identity. Identity should be proven, when possible, by implementing general morphological data with a more detailed analysis of facial forms, for example by procedures such as superimposition.

Forensic Anthropology, Personal Identification, Facial Identification