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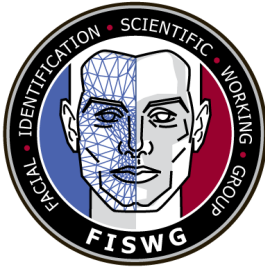
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# Guide for Facial Comparison Training of Examiners to Competency

## 1. Scope

1.1 This guide is intended to provide a minimum set of criteria for training of personnel who will conduct facial comparisons at the examiner level.

## 2. Referenced Documents

### 2.1 *ASTM Standards:*<sup>1</sup>

E2916-13 Standard Terminology for Digital and Multimedia Evidence Examination

E3149-18 Standard Guide for Facial Image Comparison Feature List for Morphological Analysis

### 2.2 *FISWG Standards:*<sup>2</sup>

FISWG Facial Image Comparison Feature List for Morphological Analysis

FISWG Glossary

FISWG Document Guide for Mentorship of Facial Comparison Trainees in Role-Based Facial Comparison

FISWG Guide for Role-Based Training in Facial Comparison

FISWG Physical Stability of Facial Features of Adults

## 3. Significance and Use

3.1 Facial examination is a human undertaking a formal systematic examination (e.g., Analysis Comparison Evaluation-Verification (ACE-V)) of facial images.

3.2 A Facial Examiner performs a comparison of image(s)-to-image(s) using a rigorous morphological analysis to compare and evaluate controlled/uncontrolled images for the purpose of effecting an opinion, often used in a forensic application.

3.3 A Facial Examiner must draw on a larger foundation of knowledge, skills, and abilities than a Facial Reviewer. This requires a more advanced level of training, in-

<sup>1</sup> For referenced ASTM standards, visit [www.nist.gov/osac/astm-launch-code](http://www.nist.gov/osac/astm-launch-code), or the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For Annual Book of ASTM.

<sup>2</sup> Available from Facial Identification Scientific Working Group (FISWG), <http://www.fiswg.org/documents>.

depth knowledge of the application of available tools and the ability to articulate the scientific basis for the examination.

3.4 The intended audience of this document includes Agencies and individuals involved in facial comparison at the examiner level.

## 4. Summary of Practice

4.1 This guide provides the minimum criteria for training of facial examiners and should be read in conjunction with FISWG document Guide for Role Based Training in Facial Comparison.

4.2 Agencies should include competency testing or a mentoring program as a component of training. Competency testing may help identify opportunities for continuing education and training. Quality assurance programs should also be a component of training as they are a reliable means of measuring the quality of each trainee's ability to perform their tasks.

4.3 Minimum training requirements for facial examiners includes demonstrating competency of the following:

4.3.1 Knowledge of and ability to summarize the history of facial comparisons in forensic science to include past methods and their shortcomings, such as the Bertillon method.

4.3.2 A thorough understanding of and the ability to apply common terminology used in the facial identification discipline to include, but not limited to:

4.3.2.1 Human face recognition (familiar/eyewitness)

4.3.2.2 Facial recognition systems

4.3.2.3 Holistic face processing

4.3.2.4 Unfamiliar face matching

4.3.3 Demonstrate a thorough understanding of the components of image science including, but not limited to:

4.3.3.1 Human vision (e.g., color, perception)

4.3.3.2 Photography (e.g., sensors, distortions, subject to camera angle, illumination)

4.3.3.3 Components of digital images (e.g., pixels, resolution, compression)

4.3.3.4 Detection of alterations within images

4.3.3.5 Properties of video (e.g., limitations, formats, extraction of still images)

4.3.3.6 Impact of digital imaging, scanning, and printing on facial features

4.3.3.7 Monitors (e.g., contrast, color rendition, types, calibration, optimal viewing conditions)

4.3.4 Demonstrate proper handling of digital media, write protection of that media, and generation of working copies.

4.3.5 Demonstrate a comprehensive working knowledge of, and be capable of explaining, the principles of comparison including, but not limited to:

4.3.5.1 The process of ACE-V

4.3.5.2 The necessity for verification by a second trained examiner

4.3.5.3 The assessment of facial image quality to determine the value for comparison based on the visibility of facial features.

4.3.5.4 The differences between class and individual characteristics, as well as those of transient and stable characteristics

4.3.5.5 The methods of comparisons. See FISWG Facial Comparison Overview and Methodology Guidelines

4.3.5.6 Models of evaluation and interpretation to reach an opinion<sup>3</sup> based on observations.

4.3.5.7 Presenting the appropriate opinion based on the relative support provided by the findings, including an understanding of the recommended methods for drawing such opinions in facial examinations.

4.3.5.8 Knowledge of scientific research related to the validity of facial comparison methods, including their strengths and limitations.

4.3.5.9 Overview and effects of bias (e.g., cognitive, confirmation, contextual) and techniques for minimizing bias, such as context management procedures.

4.3.5.10 Ability to distinguish between relevant and irrelevant task information.

4.3.6 An in-depth knowledge of facial recognition systems if one is utilized. If the organization does not utilize a facial recognition system, the trainee should have a general knowledge of these systems. Knowledge of facial recognition systems should include, but not be limited to:

4.3.6.1 User input and operation

4.3.6.2 System operation and output

4.3.6.3 Facial recognition algorithm limitations

4.3.6.4 Demographics performance variations

4.3.6.5 Imaging conditions (e.g., image quality, subject to camera angle)

4.3.6.6 Accessories (e.g., eyeglasses, jewelry)

4.3.6.7 Obstructions (e.g., masks, scarves, head coverings)

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<sup>3</sup> There is a movement in the forensic community to eliminate the word “conclusion” from the formal set of words that describe forensic processes. For example, International Organization for Standardization (ISO) does not define the word “conclusion”. This is reflected by the Organization of Scientific Area Committees for Forensic Science (OSAC) preference to use the term “opinion” (defined as View, judgment, belief – takes into consideration other information in addition to observations, data, calculations, and interpretations).

4.3.7 Knowledge and ability in applying basic image processing operations (e.g., brightness and contrast adjustments, rotations, cropping) and understand the impact of these operations on facial appearance.

4.3.8 A thorough knowledge of the bones that comprise the skull and the overlaying musculature.

4.3.9 A thorough knowledge of the FISWG Facial Image Comparison Feature List for Morphological Analysis (see also, ASTM E3149-18 Standard Guide for Facial Image Comparison Feature List for Morphological Analysis).

4.3.10 Knowledge of and ability to explain the physical stability of facial features in relation to aging, expression, weight changes, health changes, and intentional alterations and how they can affect the facial features. (See FISWG Physical Stability of Facial Features of Adults).

4.3.11 Knowledge of temporary (e.g., cosmetics, wounds, and abrasions) and permanent (e.g., scars, surgical alterations, tattoos, piercings) changes of the facial features.

4.3.12 Thorough knowledge of legal issues in facial comparison and competency in testifying in court. This knowledge includes, but is not limited to, the following:

4.3.12.1 Their Agency authorities and policies regarding acceptable use and dissemination of the findings.

4.3.12.2 The history of facial comparison and recognition in court

4.3.12.3 Implications of relevant judicial decisions

4.3.12.4 The law governing admissibility of facial recognition and identification, as well as scientific evidence in court.

4.3.13 Knowledge and ability in explaining the process of facial comparison to the court, the limits of the relevant science and technology, and the creation of visual aids. This competency should be demonstrated through courtroom training which can include the process of moot courts or mock trials.

4.3.14 The public perception(s) of the use of facial recognition and identification

4.3.15 Standards, guidelines, and best practices including but not limited to:

4.3.15.1 Rules of evidence

4.3.15.2 Chain of custody

4.3.15.3 Documentation of notes

4.3.15.4 Reporting of results

4.3.15.5 Technical review

4.3.15.6 Mitigating or exculpatory disclosures

FISWG documents can be found at: [www.fiswg.org](http://www.fiswg.org)