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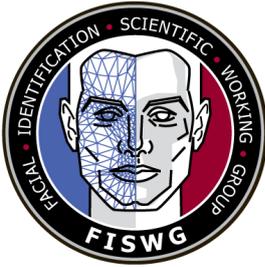
Guide for Facial Comparison Training of Examiners to Competency

1 **1. Scope**

2   1.1 This guide is intended to provide a minimum set of criteria for training of
3 personnel who will conduct facial comparisons at the examiner level.

4 **2. Referenced Documents**

5   2.1 *ASTM Standards:* [1]

6   ASTM E2916-13 Standard Terminology for Digital and Multimedia Evidence
7 Examination

8   ASTM E3149-18 Standard Guide for Facial Image Comparison Feature List for
9 Morphological Analysis
10

11   2.2 *ASTM Standards:* [2]

12   FISWG Facial Image Comparison Feature List for Morphological Analysis

13   FISWG Glossary

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

16   FISWG Guide for Role-Based Training in Facial Comparison

17   FISWG Physical Stability of Facial Features of Adults

18 **3. Terminology**

19   3.1 *Definitions:*

20   3.1.1 *unfamiliar faces*—Faces of unknown or recently learned people. Unfamiliar
21 faces characterize almost all of facial comparison decisions made in forensic

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[1] For referenced ASTM standards, visit www.nist.gov/osac/astm-launch-code, or the ASTM website, www.astm.org, or contact ASTM Customer Service at service@asstm.org. For Annual Book of ASTM.
[2] For referenced FISWG documents, visit www.fiswg.org.

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22   contexts, as the observer has no previous history with the person they are required
23   to identify.

24   3.1.2 *familiar faces*—Faces of people known to an observer. This includes the
25   faces of family, friends and colleagues, but also the faces of celebrities and people
26   we encounter regularly (e.g., barista at a café). Familiarity is largely developed over
27   multiple, separate encounters.

28   3.1.3 *face matching*—A type of facial comparison task requiring a perceptual
29   decision whether two simultaneously presented faces (photo, video, live) depict the
30   same person or different people.

31   3.1.4 *holistic process*—The innate human ability of comparing faces by looking at
32   the face as a whole without specifically considering the component parts in isolation.

33   **4. Significance and Use**

34   4.1 Facial examination is a human undertaking a formal systematic examination
35   (e.g., Analysis Comparison Evaluation-Verification (ACE-V)) of facial images.

36   4.2 A Facial Examiner performs a comparison of image(s)-to-image(s) using a
37   rigorous morphological analysis to compare and evaluate controlled/uncontrolled
38   images for the purpose of effecting an opinion[3], often used in a forensic application.

39   4.3 A Facial Examiner must draw on a larger foundation of knowledge, skills, and
40   abilities than a Facial Reviewer. This requires a more advanced level of training, in-
41   depth knowledge of the application of available tools and the ability to articulate the
42   scientific basis for the examination.

43   4.4 The intended audience of this document includes organizations and
44   individuals involved in facial comparison at the examiner level.

45   **5. Summary of Practice**

46   5.1 This guide provides the minimum criteria for training of facial examiners and
47   should be read in conjunction with FISWG document Guide for Role Based Training
48   in Facial Comparison.

49   5.2 Organizations should include competency testing or a mentoring program as a
50   component of training. Competency testing may help identify opportunities for
51   continuing education and training. Quality assurance programs should also be a

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[3] 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 use 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).

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52 component of training as they are a reliable means of measuring the quality of each
53 trainee's ability to perform work.

54 5.3   Minimum training requirements for facial examiners includes demonstrating
55 competency of the following:

56 5.3.1 Knowledge of and ability to summarize the history of facial comparisons in
57 forensic science to include past methods and their shortcomings, such as the
58 Bertillon method.

59 5.3.2 A thorough understanding of and the ability to apply common terminology
60 used in the facial identification discipline to include, but not limited to:

61 5.3.2.1   Human face recognition (familiar/eyewitness)

62 5.3.2.2   Automated facial recognition

63 5.3.2.3   Holistic face processing

64 5.3.2.4   Unfamiliar face matching

65 5.3.3 Demonstrate a thorough understanding of the components of image science
66 including, but not limited to:

67 5.3.3.1   Human vision (e.g., color, perception)

68 5.3.3.2   Photography (e.g., sensors, distortions, subject to camera angle,
69 illumination)

70 5.3.3.3   Components of digital images (e.g., pixels, resolution, compression)

71 5.3.3.4   Detection of alterations within images (e.g., excessive compression,
72 manipulation)

73 5.3.3.5   Properties of video (e.g., limitations, formats, extraction of still images)

74 5.3.3.6   Impact of digital imaging, scanning, and printing on facial features

75 5.3.3.7   Computer monitors (e.g., contrast, color rendition, types, calibration,
76 optimal viewing conditions)

77 5.3.3.8   Demonstrate proper handling of digital media, write protection of that
78 media, and generating working copies.

79 5.3.4 Demonstrate a comprehensive working knowledge of, and be capable of
80 explaining, the principles of comparison including, but not limited to:

81 5.3.4.1   Process of ACE-V

82 5.3.4.2   Understanding the necessity for verification by a second trained
83 examiner

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84   5.3.4.3   Assessment of facial image quality to determine the value for
85   comparison based on the visibility of facial features.

86   5.3.4.4   The differences between class and individual characteristics, as well as
87   those of transient and stable characteristics.

88   5.3.4.5   Methods of comparisons. See FISWG Facial Comparison Overview and
89   Methodology Guidelines

90   5.3.4.6   Models of evaluation and interpretation (including different logical
91   methods to reach an opinion based on observations)

92   5.3.4.7   Presenting the appropriate opinion based on the relative support
93   provided by the findings, including an understanding of the recommended methods
94   for drawing such opinions in facial examinations.

95   5.3.4.8   Knowledge of scientific research related to the validity of facial
96   comparison methods, including their strengths and limitations.

97   5.3.4.9   Overview and effects of bias (e.g., cognitive, confirmation, contextual)
98   and techniques for minimizing the potential for bias, such as context management
99   procedures

100   5.3.4.10   Ability to distinguish between relevant and irrelevant task information.

101   5.3.5 An in-depth knowledge of automated facial recognition systems if one is
102   utilized. If the organization does not utilize an automated facial recognition system,
103   the trainee should have a general knowledge of these systems. Knowledge of
104   automated facial recognition systems should include, but not be limited to:

105   5.3.5.1   User input and operation

106   5.3.5.2   System operation and output

107   5.3.5.3   Facial recognition algorithm limitations including, but not limited to:

108   5.3.5.4   Demographics performance variations

109   5.3.5.5   Imaging conditions (e.g., image quality, subject to camera angle)

110   5.3.5.6   Accessories (e.g., eyeglasses, jewelry)

111   5.3.5.7   Obstructions (e.g., masks, scarves, head coverings)

112   5.3.6 Knowledge and ability in applying basic image processing operations (e.g.,
113   brightness and contrast adjustments, rotations, cropping) and understand the impact
114   of these operations on facial appearance.

115   5.3.7 A thorough knowledge of the bones that comprise the skull and the
116   overlaying musculature.

117   5.3.8 A thorough knowledge of the FISWG Facial Image Comparison Feature List
118   for Morphological Analysis (see also, ASTM E3149-18 Standard Guide for Facial
119   Image Comparison Feature List for Morphological Analysis).

120   5.3.9 Knowledge of and ability to explain the physical stability of facial features in
121   relation to aging, expression, weight changes, health changes, and intentional
122   alterations and how they can affect the facial features. (See FISWG Physical
123   Stability of Facial Features of Adults).

124   5.3.10   Knowledge of temporary (e.g., cosmetics, wounds, and abrasions) and
125   permanent (e.g., scars, surgical alterations, tattoos, piercings) changes of the facial
126   features.

127   5.3.11   Thorough knowledge of legal Issues in facial comparison and
128   competency in testifying in court. This knowledge includes, but is not limited to, the
129   following:

130   5.3.11.1   Their organization's authorities and policies regarding acceptable use
131   and dissemination

132   5.3.11.2   The history of facial comparison and recognition in court

133   5.3.11.3   Implications of the relevant judicial decisions

134   5.3.11.4   The law governing admissibility of facial recognition and identification,
135   as well as scientific evidence in court.

136   5.3.11.5   Knowledge and ability in explaining the process of facial comparison to
137   the court, the limits of the relevant science and technology, and the creation of visual
138   aids. This competency should be demonstrated through courtroom training which
139   can include the process of moot courts or mock trials.

140   5.3.11.6   The public perception(s) of the use of facial recognition and
141   identification.

142   5.3.12   Standards, guidelines, and best practices including but not limited to:

143   5.3.12.1   Rules of evidence

144   5.3.12.2   Chain of custody

145   5.3.12.3   Documentation of notes

146   5.3.12.4   Reporting of results

147   5.3.12.5   Technical review

148   5.3.12.6   Mitigating or exculpatory disclosures

149 **6. Keywords**

150   6.1 training, facial identification, facial comparison

151   FISWG documents can be found at: www.fiswg.org

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