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### **E10 A Comparison of Tenprint Examiner and Latent Print Examiner Minutiae Annotation**

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The goal of this presentation is to compare tenprint examiners and latent print examiners as both examine fingerprints with the goal of making a decision of identification or exclusion upon each comparison. They do so with different training, different experiences, and under different working conditions that can affect their final determinations.

This presentation will impact the forensic science community as it explores the general differences between tenprint examiners' and latent examiners' thought processes during comparison and offers possible explanations for the differences present in minutiae annotations between these two groups of examiners.

The lack of standardization and different training methods within the fingerprint discipline causes differences in the examiners' thought processes used to make a comparison determination while using the Analysis, Comparison, Evaluation-Verification (ACE-V) methodology. Working environment, training, and experience between the tenprint examiners and latent print examiners possibly affects these thought processes. This study involved 28 participants, 8 tenprint examiners, and 20 latent print examiners, ranging in experience from six months to 33 years, and in age from 26 to 62 years. Participants work in 11 states, and span the fingerprint discipline from city, state, and federal employees to independent consultants. These volunteers participated in a two-part study designed to determine if tenprint examiners and latent print examiners differed in their consistency of marking minutiae of the same fingerprint presented to them in two different environments: independent mark-up and comparison analysis mark-up.

This study found there was no statistically significant difference between these two groups when looking at the percentage of matching minutiae markings between the two tests. Unlike what was predicted, there was statistical significance to show that all examiners tend to mark more minutiae during independent mark-up than they do in a comparison analysis environment.

The lack of standardization in minutiae annotation caused great variety regarding if any and how many minutiae were marked throughout this study. It appeared that some examiners marked each and every minutia they could see on each of the fingerprints presented in test packet #1; some fingerprints had 80-90 minutiae marked. Other examiners performed no mark-up on fingerprints that were presented independently. Still other examiners marked just enough minutiae to support the value determination and made no further marks after their value decision threshold was met. Standardization of mark-up procedure would allow for more universal documentation to support conclusion decisions and would allow better inter-agency communication regarding shared comparisons.

The higher accuracy and conclusion rates in the latent examiner group is believed to be attributed to the higher average experience of latent examiners.

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#### **Fingerprint Mark-Up, Fingerprint Comparison, Minutiae Annotation**