E72   Cognitive Profiling of Latent Fingerprint Examiners

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After attending this presentation, attendees will understand the background research that underpins the development of this cognitive profile for fingerprint examiners.

This presentation will impact the forensic science community by showing the forensic community how to identify applicants that have the aptitudes, experience, and skills needed to succeed in latent print examination.

Experts are characterized by specific and special abilities. Cognitive abilities are the mental skills necessary to accomplish a particular task. The accumulation of these specific cognitive abilities represents the general cognitive profile or "skill toolbox" which is needed to successfully perform the tasks required in a specific expert domain. In some cases, determining which cognitive abilities are important for a profession appears to be common sense. Forensic laboratory managers need to know whether applicants have the aptitudes, experience, and skills needed to succeed in latent print examination. For example, the ability to accurately detect sometimes small similarities or differences between two visual images appears to be important to the task of latent fingerprint examination. Therefore, examiners who possess the ability to make visual comparisons consistently and efficiently will be able to perform their job; however, "visual comparison abilities" is very broad and general, and vague from a cognitive perspective. Furthermore, as with all expertise, not all cognitive abilities are as obvious and even the expert may not be able to articulate all the mental skills that are important for the role. For example, professional racing drivers may not be able to articulate precisely how they know when to apply the brakes when approaching a corner; it just "feels right." This, sometimes, is the nature of expertise. Correct characterization and quantification of these cognitive profiles enable better selection and screening at recruitment, and provide a very cost-effective tool for management. They can also be used as benchmark indicators and to test for job performance potential and effectiveness. In addition, such cognitive profiles provide clear targets for skill development.

Cognitive profiling has been used in several domains including military pilots and security X-ray screeners. To help in the selection of latent print examiners, the National Institute of Standards and Technology (NIST) in collaboration with the Federal Bureau of Investigation (FBI) supported the development of a test that quantifies the cognitive processes that underpin fingerprint examinations. The details of the abilities needed for forensic latent print examination is described at www.testcogpro.com. In order to develop suitable tools to measure cognitive abilities, professionals must better understand and define the nature and critical elements of expertise. This can be done through interviews, detailed task analysis, and scientific experimentation. This presentation will provide an overview of the background research that underpins the development of this cognitive profile for fingerprint examiners. The presentation will also provide a demonstration of the test instruments constructed to measure an individual's level of aptitude for these skills.

Cognitive Profile, Special Abilities, Latent Prints