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Title of PhD thesis**: The cognitive profile of a forensic expert**

The expert opinion is one of the most important means of evidence. The current model of expert witnesses does not guarantee the high quality of their opinions. In order to minimize the number of mistakes made at each stage of expertise, candidates for forensic experts are selected using tools such as biographical data analysis (CV), personality tests, preliminary tasks, and questionnaire interviews. However, another method that best predicts future job performance is the use of tests that measure the cognitive abilities of candidates for experts. The main research objective of this thesis was to find an answer to the question of whether there is a cognitive profile of a forensic expert that would determine cognitive abilities crucial to the performance of evidence comparison. In addition, this work sought an answer to the question of whether there are cognitive abilities that are universally beneficial (i.e. for experts in every forensic discipline) and abilities that are specifically beneficial (i.e. for experts in certain specialties). A study was conducted to determine whether cognitive abilities such as visual search, attention allocation, working memory capacity, object comparison, mental rotation of objects, and the personality trait – need for cognitive closure correlate with the results obtained in the tasks of signature comparison and fingerprints comparison. The study consisted of two stages. In the first, probands solved seven tests measuring cognitive abilities. In the second part, the test subjects solved 20 fingerprint comparison tasks, 20 signature comparison tasks and an abbreviated version of the Need for Closure Scale. Significant correlations were observed. The results of the study significantly support the hypothesis that there is a cognitive profile of the forensic expert that determines cognitive abilities beneficial to the performance of evidence examinations. This profile likely includes the ability to mentally rotate objects. It was also found that the cognitive profile of a handwriting expert differs from that of a fingerprint expert. The cognitive profile of the handwriting expert consists of the ability to mentally rotate objects, while the cognitive profile of the fingerprint expert consists of the ability to compare objects, the ability to mentally rotate objects, the attention allocation, the capacity of working memory and the personality trait – the need for cognitive closure. The results of the study suggest that with the proper selection of candidates for forensic experts, it is possible to select people with better cognitive aptitude who will make mistakes less often in evidence examinations. In future studies, research should be conducted towards determining the cognitive profiles of experts in other fields of forensic science. It should also be considered to supplement the specific cognitive profiles with further cognitive abilities relevant to evidence examinations. The general cognitive profile and the specific cognitive profiles presented in the dissertation, as well as the associated tests should be used in the process of recruiting forensic experts for laboratories after improvement and supplement with further cognitive abilities. The above observations make us think about remodeling the recruitment process for forensic experts and developing such a recruitment system in which tests measuring cognitive abilities will have a leading role in qualifying a candidate for training.