

# A Psychological Perspective Within Forensic Pattern Recognition Disciplines

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## INTRODUCTION

Studies from the decision making literature (Kahneman, 2011; Aronson, 1999; Tversky & Kahneman, Asch, 1956) have been used to support and conduct studies within decision-making processes in forensic sciences work fields such as fingerprint examinations (Dror, 2013; Kassin, Dror & Kukucka, 2013; Charlton, Fraser-Mackenzie & Dror, 2010).

The process of fingerprint examination is composed of three primary phases (Analysis, Comparison and Evaluation) plus an independent phase (Verification), which are what in this field is known as the ACE-V process, which is the official procedure to assess fingerprints (UK Forensic Science Regulator, 2011).

Although, some research has been done in the Verification phase (Ulery, Hicklin, Buscaglia & Roberts, 2012) some topics within human factors still need to be studied in this phase of ACE-V.

## METHODOLOGY

In order to achieve better understanding of the variables which can affect the Verification phase of the ACE-V methodology, this research intends to conduct a set of experiments with fingerprint examiners and lay-people participants.

One of the aims in this research is to observe in a psychological perspective the variables that affect not just experts, but also lay-people. Doing this, the research will then point out the most important factors that affect human performance in tasks such as the fingerprint exam.

In order to achieve the proposed aim, computer based experiments with different types of stimuli will be conducted.

Stimuli type 1 – [Fingerprints] to recreate the task fingerprint examiners do in their work-field.  
Stimuli type 2 – [Paragraphs of text] to recreate the type of human skills needed in a task similar to fingerprint examinations



Experimental setting where participants will have as a stimuli fingerprints to analyse.

*Stimuli made with Sfringe Software*

The committee that investigated Stapel's misconduct has yet to identify the research papers tainted by his fraud, but it has already noted that the closed culture that points much psychology research greatly aided Stapel's deceptions. One may argue that his misconduct is exceptional, regardless of research culture. However, the minor transgressions that all scientists are tempted to, this sentence should not be here, as pointed out by Jennifer Crocker in a World View last month (see *Nature*, 479, 151; 2011), are more likely when there is less scrutiny.

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Experimental setting where participants will have as a stimuli pieces of text to analyse.

*Stimuli from Nature Vol. 480*

Variables manipulated: Time, feedback, contextual information,

## OUTCOMES

Some of the outcomes this research wishes to achieve:

1. Observing the common variables that affect either fingerprint examiners and lay-people.
2. Dividing the sources of cognitive contaminations into two categories, (1) internal variables which are related to the factors within the forensic laboratory and (2) external variables which are external sources of bias from outside the laboratory.
3. Developing suggestions to share with the forensic community in order to achieve a better understanding of which guidelines must be adopted due to the current regulations, namely the official regulations for forensic laboratories – ISO 17025.

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Thanks!!!

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In order to achieve more sensitive data, this research will be partially conducted using an eye tracker, where measures like time response and eye movements will be better discriminated

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