Hall & Player (2008)

The analysis and comparison of fingerprints relies on the ability of an individual to recognise the differences or similarities between the ridge details of a finger mark obtained from a crime scene with one taken from a suspect. The process is open to the questioning of an expert's ability to accurately analyse and interpret friction ridges. It has been suggested that the interpretation and analysis of finger marks becomes more subjective as clarity decreases and as a consequence the expert is more vulnerable to external stimuli.

Experimental research by Dror et al (2005) suggests that emotional effects based on external stimuli; do impact on decision making processes during the examination of fingerprints. It has been suggested that the circumstances surrounding a crime case and the pressure experts are put under to produce results may influence the reported outcome (Risinger et al, 2002).

In the UK the training of a fingerprint expert involves a structured programme of formal courses, which tutor and assess a series of competencies, including the scientific theories of foetal fingerprint development and the factors that give rise to their observed individuality; methods for the recovery of latent finger marks; applied examination techniques, utilising Analysis, Comparison, Evaluation and Verification (ACE-V) methodology. The practitioner then utilises these competencies through practical work experience. During their progression to ''expert'' status the practitioner's work is constantly peer reviewed and assessed. The training process requires the achievement and demonstration of competence before a practitioner is deemed proficient to give fingerprint evidence in a court of law. It is accepted that an expert in any discipline, as opposed to a novice, is able to demonstrate their increased competencies and cognitive processing skills, which have been enhanced with extensive training and practice.

In many cases the marks available from a crime scene are far from ideal. The marks may be incomplete, smudged, distorted, rotated or may be obscured by the substrate. In order to secure quality, it is standard operating procedure for the identification process to be conducted independently by at least two fingerprint experts.

This study was a laboratory experiment. Although designed to be as naturalistic as possible with participants being asked to participate in work time, in a typical fingerprint examination room within the New Scotland Yard Fingerprint Bureau, the task itself was artificially generated and participants were randomly allocated to one of two conditions; low-context or high-context group.

The independent variable (IV) was whether the participant was allocated to the low-context or the high-context group and the dependent variables (DVs) were (a) whether the participant read the crime scene examination report prior to examining the fingerprint; (b) whether the participant considered the finger mark was (i) identification – a match, (ii) not an identification – not a match, (iii) insufficient – not enough detail to undertake a comparison, (iv) insufficient detail to establish identity, some detail in agreement but not

enough to individualise; (c) whether the participant would be confident to present the fingerprint as evidence at court.

All participants were volunteers and all fingerprint practitioners, chosen to represent a wide variation of experience. 70 fingerprint experts working for the Metropolitan Police Fingerprint Bureau took part. Their length of experience as experts ranged from less than three months to over 30 years. The mean length of experience was 11 years.

A minority of participants (12 in total) had managerial roles and although they were still on the United Kingdom National Register of fingerprint experts, they were no longer active practitioners.

In order to validate the decisions of the experts, a finger impression from a known source was used. A volunteer's right forefinger was inked and introduced to a piece of paper. This good quality clear mark was then scanned on to a computer and super-imposed on a scanned image of a £50 note. The finger mark was positioned so the background of the note obscured the majority of the ridge detail. The mark was then manipulated to control the contrast and further obscure the discernible detail within the finger mark. Fourteen copies of this mark were then printed for use in the experiment. The finger mark and the corresponding set of fingerprint impressions (all 10- printed fingers, donated by the same source as the mark) were then given to participants who were asked to give their expert opinions as to whether there was a match using the procedure described.

The volunteers were randomly assigned in groups of eight and were asked to treat the experiment as they would a typical day, they could come and go as they pleased and talk among themselves as long as they did not discuss the finger marks that they were analysing in the experiment, or the experiment itself. No time limit was placed on the participants and they were told to consider the experiment material as an ordinary case.

The participants were assigned into one of two groups, low-emotional context or high-emotional context, on the day of the experiment. The low-context group (35 participants) was given an examination report referring to an allegation of forgery. This was chosen as it is considered a victimless crime and carries a relatively minor sentence. The modus operandi stated that a ''Suspect entered premises and tried to pay for goods with a forged £50 note. The forgery was spotted by cashier. Suspect then decamped'' i.e. left the scene. The high-context group (35 participants) was given an examination report referring to an allegation of murder. This was chosen because there is, inevitably, a victim and it carries the most severe sentence. The final wording on the examination report was altered to read ''Suspect then fired two shots at victim before decamping'' i.e. leaving the scene.

The participants were given an envelope containing one of the test marks, the relevant 10-print fingerprint form, the relevant scene examiner's examination report and a sheet of paper advising participants of the contents which also stated that the mark was made by the right forefinger.

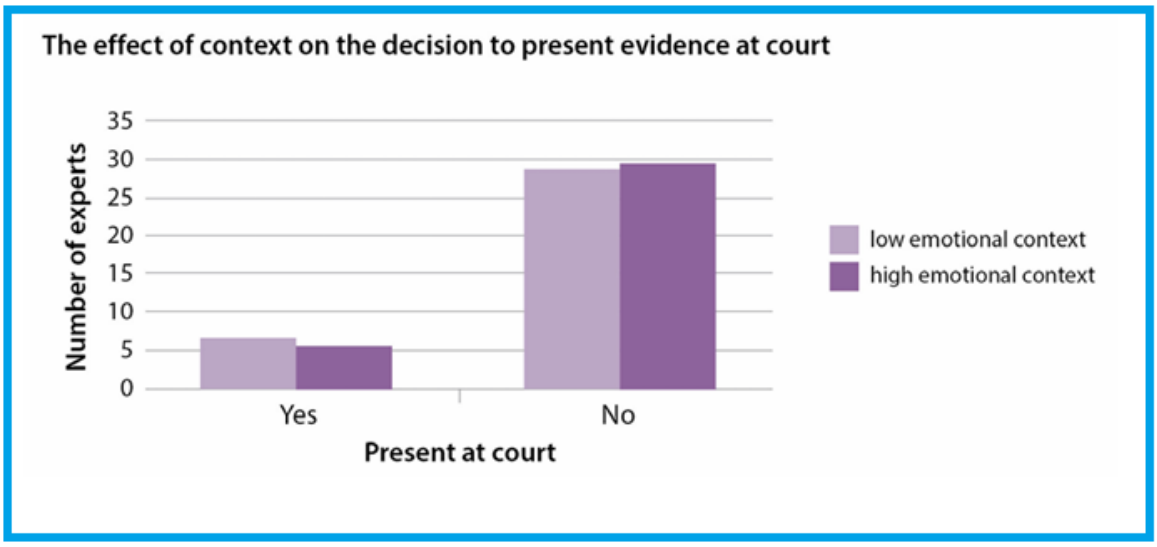
The experts were then asked to consider whether the mark was (i) identification (a match) (ii) not an identification (not a match) (iii) insufficient—not enough detail to undertake a comparison, or (iv) insufficient detail to establish identity, some detail in agreement but not enough to individualise.

Finally, when they had finished the experiment, they were given a feedback sheet which asked whether or not they had referred to the crime scene examination report prior to their assessment of the marks and to indicate what information they had read, i.e. the allegation, modus operandi, date, venue, victim and the details of examination. If they had referred to the crime scene examination report they were also asked whether, in their own judgment, they felt that the information contained on the examination report had affected their analysis and if so how?

A total of 57 of the 70 participants (81.4%) indicated that they had read the crime scene examination report prior to examining the prints. 30 of the 57 were in the high-context scenario group showing that 52.6%) compared to 27 (47.4%) of the low-context group.

Therefore 18.6 (19%) of experts stated on their feedback forms that they did not read the crime scene examiner's report presented with the finger marks (so were unaware of the crime type context when making their judgements).

52% of the 30 who had read the high-context scenario felt that they were affected by the information given on the examination report which is significantly greater than the 6% who had read and reported that they were affected by the low-context scenario.



The graph shows that 17% of those given the high context and 20% of those given the low-context scenario were sufficiently confident to present the mark as a positive identification to the court.

The study concluded that emotional context affects a fingerprint expert's analysis but this does not have any actual effect on their final decisions. The severity of a case affects a fingerprint expert's analysis but this does not have any actual effect on their final decisions. There may be motivating factors and bias in the collection and processing of forensic evidence.