

EYEWITNESS IDENTIFICATION RESEARCH LABORATORY

REFERENCE LIST FOR

"Composites, Composite Construction and Related Things"

I. Summary. (1000 words)

The following is taken from the "conclusions" section in Davies, G. & Valentine, T. (2007). Facial Composites-Forensic Utility and Psychological Research. in R.C.L. Lindsay, D.F. Ross, J.D. Read & M.P. Toglia, Handbook of Eyewitness Psychology, Vol. 2, Memory for People. Mahwah, NJ- Lawrence Erlbaum.

Skilled police artists remain the benchmark against which all systems must be compared, and no mechanical or software system has yet to equal or outperform them. However, although artists are quick to trumpet their successes, they have also had their failures, and the overall level of accuracy is hard to compute for a skill so idiosyncratic and poorly understood. After three decades of intensive research, it is still unclear for any technique what predicts or postdicts a successful interview. Witnesses are inconsistent in the quality of composites they reproduce from one face to another and over time (Davies et al., 1978a). Neither the witnesses themselves nor the operators are effective in estimating when a likeness is likely to prove to be of good or poor quality (Kovera et al., 1997). A good likeness appears to depend upon an elusive combination of a face whose features may be readily reproduced, an observant and articulate witness, and a skilled operator who knows how to ask the right questions (Davies et al., 1983).

This is not to deny the progress that has been achieved through research and development. Some of the more obvious sources of error evident in earlier systems have been identified and removed. These include a lack of relevant features and sufficient flexibility of size and positioning to model the full range of faces. For the male Caucasian face, most software systems now allow the skilled operator to fashion a recognizable likeness from life or a photograph (Brace et al., 2000; Cutler et al., 1988). Likewise, fourth generation systems permit witnesses to work on total faces rather than use the traditional approach emphasizing individual features (Gibson et al., 2003).

One area of continuing controversy concerns the possible inhibiting effect of verbal description on facial recall. Dodson, Johnson, and Schooler (1997) demonstrated experimentally that recognition for faces can be impaired if the observer is required to verbally describe them prior to recognition: the "verbal overshadowing effect." It has been recently demonstrated that providing detailed verbal descriptions impairs the witness's ability to subsequently select appropriate features (Wells, Charman, & Olson, 2005). Clark (2000), too, reported that for E-fit, the recommended practice of re-interviewing the witness about the suspect's appearance midway through construction had a detrimental effect upon final composite quality, a finding consistent with overshadowing. However, verbal overshadowing is not an inevitable consequence of describing a face, even under laboratory conditions (Meissner & Brigham, 2001), and delay serves to reduce any potential impairment (Finger & Pezdek, 1999). The conditions under

which verbal encoding interferes with facial memory remain poorly understood. The retrieval-based interference explanation assumes that verbalization impairs the original memory trace of the face (Meissner, Brigham, & Kelley, 2001). However, in some circumstances it appears that verbal recall and visual recognition processes function independently (Davies, 1986a), and an explanation of the verbal overshadowing effect in terms of a criterion shift seems at least as plausible (Clare & Lewandowsky, 2004).

One consideration that perhaps has been insufficiently challenged is the belief that memory for a briefly observed and unfamiliar face is sufficiently detailed to construct a successful composite. This belief appears to be based on the frequently iterated statement that face recognition is far superior to face recall, and our ability to recognize faces, often after many years, testifies to a robust and unique encoding system for all faces. More recent research on face recognition suggests, however, that familiar and unfamiliar faces are encoded in different ways which results in striking differences in subsequent ease of recognition (Bruce & Young, 1998). Even degraded images of familiar individuals caught on CCTV are readily recognized (Burton, Wilson, Cowan, & Bruce, 1999), but unfamiliar faces seen on CCTV are matched to an appropriate photograph very in- accurately indeed, even when participants have continuous access to an image of the face as they carry out the task (Bruce, Henderson, Newman, & Burton, 2001; Davies & Thasen, 2000; Kemp, Howell, & Pike, 1997).

Research from other areas of face processing suggests that memory for the appearance of novel faces may be fragmentary and inadequate. Ellis (1984) noted that verbal descriptions, both in the presence of the face and from memory, were selective and in- complete. Even in recognition memory for novel faces, faces that share certain dominant attributes such as hair style and face shape are readily confused (Davies, Shepherd, & Ellis, 1979). Learning a face takes time and repeated exposure under different viewing conditions (Bruce, 2003).

Schema theory has demonstrated that where memory is imperfect, then plausible reconstruction is likely to take place, which may or may not be accurate (Brewer, 1996). In a task like constructing a face, which requires exhaustive recall of all features, there are opportunities for attitudes and assumptions to fill gaps and color the constructive process. Some years ago, Shepherd, Ellis, McMurrin, and Davies (1978) demonstrated the impact of negative and positive stereotypes on Photo& reconstructions. Witnesses constructed composites that were judged as more intelligent and handsome when they were told the man was a lifeboat captain than when he was described as a murderer (see also Oliver, Jackson, Moses, & Dangerfield, 2004, for an example of the influence of racial stereotyping on face recall). More recently, Davies and Oldman (1999) replicated the finding of Shepherd et al. with the use of familiar faces and showed that attitudes also influenced quality of likeness. Faces made by persons who disliked the target were of a better quality than those made by persons who liked them. As the authors observed, contempt appears to breed familiarity.

It seems likely that the largest distortions due to affect and stereotyping will occur on unfamiliar faces viewed for fleeting periods, often the conditions prevailing when witnesses to crime view actual suspects. In these circumstances, it may be that for many witnesses, composite production imposes an unrealistic burden upon them, with inevitable consequences for composite quality, irrespective of the system employed. Perhaps, in the light of recent findings, composite production should be reserved for witnesses who have had extensive experience of the person concerned. Perhaps feature selection should be confined to items mentioned by witnesses in their verbal descriptions. Intelligent systems could be developed that could accurately "suggest"

missing features from existing choices of other parts of the face, rather than rely on guesses fueled by feelings and stereotypes.

Probably the first encounter between psychologists and the Identikit was described by Connolly and McKeller (1963): "Having seen this device, and having been subjects in a demonstration, we consider this to be a marked improvement [over verbal descriptions] but also a 'psychological Pandora's box'" (p. 22), adding that "the problem of identification would repay psychological enquiry" (p. 23). Four generations of composite systems have now been reviewed together with the psychological enquiry they have provoked. Although measurable progress has been made and all systems may claim successes, perhaps the quest for the perfect system may be illusory and we must learn to live within the limitations of witness memory.

II. Meta Analyses and other literature reviews.

Davies, G. & Valentine, T. (2007). Facial Composites-Forensic Utility and Psychological Research. in R.C.L. Lindsay, D.F. Ross, J.D. Read & M.P. Toglia, Handbook of Eyewitness Psychology, Vol. 2, Memory for People. Mahwah, NJ- Lawrence Erlbaum

III. Empirical Studies published since the latest meta-analysis.

IV. Classic studies.

Anything on composites by Hadyn Ellis, Graham Davies and/or John Shepherd, in any combination.

V. List of studies. (t = mainly theoretical; e = mainly empirical).

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VI. List of Legal Cases.
