# Use of Facial Composite Systems in U.S. Law Enforcement Agencies

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Abstract

Facial composite images are often used in the criminal investigation process to facilitate the search for and identification of someone who has committed a crime. Since the use of facial composite images is sometimes relied upon as an integral part of an investigation, it is important to ascertain information about the various decisions made and procedures implemented by law enforcement regarding the use of composites. A 39-item survey was developed to examine the prevalence of a number of procedures related to composite production, including the systems implemented, criteria for selecting systems, law enforcement training, satisfaction with systems, legal challenges, and procedural issues with respect to interviewing multiple witnesses and the distribution of composite images. Surveys were distributed to 1637 city, state and county law enforcement agencies nationwide; 163 completed surveys were returned. This paper summarizes our survey results and discusses the implications for investigative procedures, law enforcement training, and future research needs.

Eyewitness identification evidence is given considerable weight by the triers of fact in criminal court proceedings (e.g., Cutler, Penrod, & Stuve, 1988). Unfortunately, an extensive body of research over the last two decades has debunked the notion that eyewitness evidence is always reliable. The exoneration of 156 individuals wrongfully convicted on the basis of DNA evidence as of February 2005 (www.innocenceproject.org) supports this conclusion: more than 80% of cases of proven wrongful imprisonment are due, at least in part, to mistaken eyewitness identification (Rattner, 1988; Scheck, Neufeld, & Dwyer, 2001; Wells et al., 2000). According to Scheck et al. (2001), inadequate procedures used by law enforcement are largely responsible for facilitating mistaken identifications.

The construction and distribution of a facial composite image of a criminal is a procedure that is sometimes central to the beginning of a police investigation. Facial composite images are used when the identity of the culprit is unknown and/or when witnesses do not make an identification from a lineup or collection of mugshots offered by the police. Under these circumstances, witnesses are often asked to participate in the process of constructing a facial image of the culprit. Forensic/sketch artists are sometimes contracted to participate in this process and work with the witness to develop a sketch of the culprit's facial appearance. However, reliance on forensic artists for this purpose has largely been replaced by facial composite "systems" that can be used by police officers, and are believed to serve a similar purpose. Using these techniques, witnesses select individual facial features one at a time from sets of pictoral images and assemble them into a likeness of their recollection of the culprit's face.

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Intuitively, constructing a facial composite seems like a procedure that could be quite effective in facilitating the search for someone who has committed a crime. Yet, decades of empirical studies have demonstrated the virtual ineffectiveness of both traditional composite systems and newer computer-based technologies in their ability to accurately depict an individual, particularly when the likeness is created from a witness's memory of a face (see Davies, van der Willik, & Morrison, 2000; Shepherd & Ellis, 1996).

The traditional and most common facial composite construction systems used by police forces for years included the British Photofit (Penry, 1971) and the American IdentiKit (Dunleavy, 1959, 1975). The use of these older systems involves the selection of individual photographic elements from a kit, and then these component features are assembled into a whole face configuration. In general, the research investigating the efficacy of these two systems shows little support for their ability to produce accurate representations of faces, both when witnesses attempt the construction from their memory of a face and when the face is in full view during construction (Davies, Ellis, & Shepherd, 1978; Ellis, Davies, & Shepherd, 1978; Ellis, Shepherd, & Davies, 1975). The American IdentiKit system has not fared much better (Green & Geiselman, 1989; Laughery, Duval, & Fowler, 1977; Laughery & Fowler, 1980).

Computerized versions of both Photofit (called E-Fit; Aspley Limited, 1993) and IdentiKit (called IdentiKit 2000; Smith & Wesson, 2000) have been developed, as well as other computerized technologies, e.g. Mac-a-Mug (Shaharazam, 1986) and Faces (IQ Biometrix, 1998). These systems were designed to provide advantages over the traditional, manual composite systems (see Kovera, Penrod, Pappas, & Thill, 1997). They are said to provide a more thorough facial feature catalog than traditional systems. The newer technologies allow for manipulation of facial features within the facial space – an important element not possible in the traditional systems. Artistic enhancement is also possible with some systems with the use of other computer graphics programs. Since the images are stored as computer files, higher quality printouts of the facial images can be obtained as well. Unfortunately, these newer, more sophisticated systems are not much more effective than the traditional systems. Research by Davies et al. (2000) found that E-Fit images are superior to Photofit images in terms of their likeness to the actual target faces, but only when the face is in full view during construction; facial composites constructed from memory are no better when using E-fit. Facial images constructed using the Mac-a-Mug system have also been shown to be recognizable only when created with the target face in view during construction (Cutler, Stocklein, & Penrod, 1988; Wogalter & Marwitz, 1991), however other research using more forensically-relevant experimental conditions failed to replicate these effects (Koehn & Fisher, 1997; Kovera et al., 1997). Research by McQuiston (2003) investigating the utility of Faces 3.0 found that facial images produced by witnesses from memory are generally poor representations of the target face and are of low utility in trying to locate the intended target in a matching task. Importantly, this research also demonstrates the system's inflexibility in making facial images of varying ethnic groups. Finally, the results of recent research examining the accuracy of facial composite images produced using current British and American computerized systems (i.e., E-Fit, PROfit, Faces 3.0, and EvoFIT) is consistent with the body of research described above: these systems are generally not effective in producing good quality facial images from memory (Frowd et al., 2005a).

Empirical research has also identified a host of variables responsible for affecting the accuracy of composite images that witnesses produce (see Shepherd and Ellis, 1996 for a review). Among these variables are operator

expertise (Davies & Little, 1990; Davies, Milne, & Shepherd, 1983; Ellis et al., 1978), equipment effects (Christie & Ellis, 1981; Davies et al., 2000; Ellis et al., 1978; Laughery & Fowler, 1980), practice constructing composite images (Christie & Ellis, 1981; Wogalter & Marwitz, 1991), and witness/situational effects (Davies, 1981, 1983; Davies & Christie, 1982; Ellis & Shepherd, 1992). These results contribute to an already tenuous situation concerning the utility of facial composite images in a criminal investigation.

Overall, the body of literature investigating the use of facial composites has demonstrated serious limitations of these systems in terms of their production of accurate facial likenesses. However, we know from the extensive media coverage of various criminal cases across the country that composite images are often relied upon as an important source of evidence for locating and prosecuting the guilty party. A recent popular press book (Boylan, 2001) also emphasizes this point by providing details about the use of composite images in some high profile criminal investigations. Yet, aside from this, we know very little about which composite systems are actually utilized by law enforcement agencies in the U.S., what selection criteria the police use when making this decision, police officers' satisfaction with these systems, the methods by which police officers are trained to work with crime witnesses to create a composite, the interviewing procedures they use with crime witnesses, and other issues concerning the use of composite images after they are produced. It is important to get information about the procedures currently implemented by police in order to develop and pursue new research directions, and to develop training programs for law enforcement involved in the facial composite construction process. Thus, the purpose of the present research was to learn about the decisions made and methods used by police officers concerning facial composite procedures. This study describes the data derived from a national survey of U.S. law enforcement concerning facial composite construction procedures.

## METHOD

### Participants

Surveys were directed to 1637 U.S. law enforcement agencies, sampled from a national database at the National Public Safety Information Bureau (1999). Stratified random sampling was used to obtain samples from municipal, county, and state jurisdictions. Based on this sampling method, 56% (910) were distributed to U.S. municipal law enforcement agencies, 30% (500) were distributed to U.S. county law enforcement agencies, and 14% (227) were distributed to U.S. state law enforcement agencies. A median split was used when sampling from the municipal and county jurisdictions so that half of each were above the median population (large jurisdictions) and half were below the median population (small jurisdictions).

### Survey instrument and procedure

A 39-item survey was developed which addressed issues related to facial composite construction. The survey contained questions about composite systems currently implemented in the U.S., and satisfaction with these systems. This survey also aimed to examine operator expertise across the U.S., methods of training within the agency used to instruct law enforcement officials on creating facial composites, interviewing procedures used with eyewitnesses, and other issues related to composite construction. Twenty-four of the survey items were multiple choice questions, 15 of which requested only one response while the remaining multiple choice questions included a "check all that apply" instruction. The remaining 15 survey items were open-ended questions, eight of which required a numeric response.

Surveys were addressed to the agency head (i.e., Sheriff, Captain, Chief) provided by the national database service. A cover letter requested that the survey be forwarded to a

person within the agency responsible for creating facial composites. Participants were asked to return the survey in the return postage-paid envelope provided. Approximately two months after the initial mailing, a follow-up postcard was sent to the entire sample in which we offered to mail another survey if needed. Of the surveys distributed, a total of 163 completed surveys (10%) were returned. Of those returned, 61% (100) were from municipal jurisdictions (89 from large cities, 11 from small cities), 19% (31) were from state jurisdictions, 17% (28) were from county jurisdictions (22 from large counties, 5 from small counties), and 3% (4) were from village/town jurisdictions2. An additional 39 surveys were returned to us (7 each from small cities and small and large counties, 10 from large cities, and 8 from state jurisdictions) with a note explaining that facial composite procedures were not performed in that specific jurisdiction, and 3 were returned indicating that the facial composite survey did not apply to their agency.

Percentages and means are reported below for those survey items that were multiple choice in nature or were open-ended and required a numeric response. To analyze responses to the open-ended (non-numeric) questions, response categories were created based on respondents' answers and scored by two raters. Reliability was checked by having both raters independently code a 50% subset of the responses (97% inter-rater agreement).

## SURVEY DATA

### Experience

Police officers were asked about their experience in constructing facial composites. On average, respondents indicated having 8 years (SD=6.22; Mdn=7) of experience constructing composites, which did not vary by police jurisdiction. When officers were asked how many composites they had constructed during the last 12 months, the median response was 4, with county jurisdictions constructing more composites on average (M=12.3) than city jurisdictions (M=5.09), $F(4,148)=2.44$, $p<.05$. During their total experience as officers, the median number of composites reported being constructed was 20, and did not vary by jurisdiction. When asked how many individuals in the agency were responsible for creating facial composites, it was reported that, on average, five individuals (SD=6.32; Mdn=3) were responsible for this procedural aspect of an investigation, with state police having more officers trained to construct composites (M=8.59) than both city police (M=4.29) and county police (M=4.93), $F(4,157)=3.38$, $p<.02$.

An average of two facial composites (SD=4.25; Mdn=.01) per month were created per agency, with state police agencies creating more composites per month (M=4.36) than both city (M=1.02) and county police (M=1.48), $F(4,144)=3.52$, $p<.01$. When officers were asked who in the agency was responsible for creating facial composites, and provided with non-mutually exclusive response alternatives, 73% reported that detectives were responsible, 23% stated that police officers were responsible, and 30% reported that other individuals were responsible for creating facial composites including sworn and civilian evidence technicians, crime scene analysts, and forensic artists.

### Use of composite systems, satisfaction, and selection criteria

Officers were asked to indicate which composite procedure(s) – forensic artists, manual composite tools, or computerized composite technologies – they currently use or have used during the last 10 years (respondents were permitted to indicate use of more than one procedure). Eighty percent of officers reported having used a computerized composite technology to construct facial images and 38% indicated having used non-computerized systems. Of those respondents who indicated

[2] Officers were asked on the survey to indicate whether they were from a city, county, or state police jurisdiction, however three respondents wrote in "town" and one wrote in "village".

use of a computerized composite system (N=146), the most frequently reported technologies used were IdentiKit 2000 (36%), Faces 3.0 (32%), Comphotofit (12%), C.R.I.M.E.S. (7%), Compusketch (6%), CD-FIT (3%), E-FIT (3%), and FaceKit (2%). For those that indicated having used a manual composite system (N=61), IdentiKit was by far the most popular (reported by 94%), followed by the Grumbacher-Shading Stump and FBI Facial Catalog (each 2%). Forty-three percent of officers reported relying on forensic/sketch artists to construct composites. While city police indicated the greatest reliance on sketch artists, $\chi 2(4,N=159)=11.89$, $p<.02$, state police indicated the greatest likelihood to have artists on staff rather than contract them as needed, $\chi 2(2,N=68)=14.53$, $p=.001$.

Officers were also asked to indicate how satisfied they were with their method(s) of composite construction using a 5-point scale (1=very satisfied and 5=very dissatisfied). Respondents reporting using sketch artistry had a mean satisfaction rating of 1.7, CRIMES' average rating was 1.8, and CD-FIT and FaceKit users indicated identical satisfaction ratings of 2.0. The average ratings for IdentiKit 2000, Faces 3.0, and Comphotofit were equivalent at 2.1, while E-fit users had an average satisfaction rating of 2.3. Compusketch users had the lowest satisfaction rating with a mean of 3.7. An ANOVA resulted in significantly higher satisfaction ratings for both sketch artistry (M=1.70) and computerized systems (M=2.03) over non-computerized systems (M=2.70), $F(2,259)=16.27$, $p<.01$. Officers' experience constructing composites was unrelated to their reported use of and satisfaction with particular composite procedures.

When asked about the criteria used in selecting a particular composite system (open-ended), officers reported a variety of factors that are considered in selecting a composite tool, including: individual detective/division head/forensic artist makes determination (18%), cost of tool and training (13%), trained personnel availability (13%), only one available to agency (12%), end product quality (10%), ease of use (10%), recommendation from other investigators (4%), solicitation of product (3%), performance and compatibility (2%), training (2%), portability (2%), case by case basis (2%), whatever is available to agency (2%), and trying them out (2%). An additional 2% reported that there were no set standards for choosing a composite system. Responses did not vary by jurisdiction, and these selection criteria were not statistically related to officers' experience or the composite procedures used.

Composite system training

Officers were asked what type of training they received to learn to construct facial composites using manual and computerized systems, and provided with a list of response alternatives (non-mutually exclusive). Sixty-eight percent reported receiving instruction from coursework or professional instruction, 24% reported having been trained by a fellow police officer, 19% learned composite construction from general written recommendations or guidelines, 6% reported that they learned through specific rules and regulations, and 26% reported having learned through other methods such as being self-taught, learning on the job, and trial and error. Respondents indicated that fewer hours of training were needed to learn to operate computer based systems (M=8.34, SD=13.31, Mdn=8) than to operate non-computer based systems (M=13.73, SD=12.10; Mdn=16), $t(171)=-2.45$, $p<.02$.

Those learning composite construction through coursework/professional instruction were more likely to be from city police agencies than the other jurisdictions, $\chi 2(4,N=128)=15.94$, $p<.01$, and more often indicated having a standard procedure for interviewing eyewitnesses than those not learning from this method, $\chi 2(1,N=155)=8.76$, $p<.01$. Several training methods were

correlated with officers' experience: coursework and written guidelines were related to the number of composites reportedly constructed during the officers' careers, $r(130)=.24$, $p<.01$ and $r(130)=.18$, $p<.05$, respectively; coursework and learning from another officer were related to the number of years officers had been constructing composites, $r(152)=.30$, $p<.01$ and $r(152)=.16$, $p<.05$, respectively, and to the number of composites reportedly constructed during the last 12 months, $r(149)=.29$, $p<.02$ and $r(149)=.26$, $p<.01$, respectively; and learning from another officer was related to the number of composites reportedly constructed per month, $r(144)=.20$, $p<.02$.

Witness interviews and multiple witness procedures

When asked if the agency has developed a standard witness interviewing procedure for the process of creating a facial composite, 55% of the officers reported that they had a standard interviewing procedure and 45% reported that they did not; this breakdown was consistent across jurisdictions. Those who reported that a standard procedure was used were asked to describe the procedure (open-ended). Seventy-seven percent indicated they elicit a description first and then refine the specific facial features, 15% indicated using a specific interviewing technique but did not describe it, 12% said they have witnesses view facial photographs as part of the composite production process, 12% reported using the Cognitive Interview, 8% responded using either a random procedure or no standard procedure, 6% use a questionnaire in which witnesses indicate the presence of particular facial features, and 3% indicated using the FBI facial feature catalog as part of the witness interview process. County police jurisdictions more often indicated using a random or no specific interviewing procedure than state and city police, $\chi 2$ $(3,N=88)=8.13$, $p<.05$.

Officers were also asked to indicate what procedure they follow with respect to composite production when more than one eyewitness is involved in the case, and were provided with a list of choice alternatives. A large majority of respondents (77%) reported that they interview witnesses separately using the same composite operator and create one composite for each witness, 6% reported interviewing witnesses together and creating one composite, and 5% indicated that they interview witnesses separately with different operators and create separate composites for each witness. City police officers indicated conducting independent interviews of witnesses more often than the other jurisdictions, $\chi 2(12,N=157)=34.25$, $p=.001$. Twelve percent of respondents indicated using other methods than those options provided, including: initially interviewing all witnesses and then working with the "best" witness to create the composite; interviewing the "primary" witness to create one composite and then show it to the other witnesses and make adjustments depending on their comments; and having witnesses construct separate composites and then each views all of the images and come to a consensus on the most accurate likeness to the culprit. Witness interviews were not statistically related to officers' experience, training, or choice in composite procedure.

Procedures for use of composite images

When asked what agencies do with facial composites once they are created and provided with a list of possible responses (non-mutually exclusive), 91% indicated they file with case records, 90% indicated they distribute the composite within the department, 90% said they distribute the composite to other agencies, 68% responded that they send the composite to news media, and 12% indicated that they had other uses for facial composites. Out of the respondents that indicated "other" uses for facial composites, 38% responded that they distribute the composite to local schools, businesses and other target areas, 31% post them on the internet, 15% distribute to other intelligence agencies or private centers, and

15% reported that it depends on each individual case.

Officers were asked if witnesses were permitted to keep a copy of the facial composite. Responses were consistent across jurisdictions. Seventy-five percent indicated they do not allow witnesses to keep a copy of the facial composite, 8% do allow witnesses to keep a copy, and 17% sometimes allow the witness to keep a copy. Of those officers indicating that witnesses are either "always" or "sometimes" allowed to keep a copy of the composite, the following circumstances under which this happens were reported (open-ended): it was at the detective's discretion (31%), upon the witness' request (28%), when a series of similar crimes had occurred in or around the area and/or the culprit may re-offend (25%), when the witness was eager to assist in the investigation (4%), when the witness was helpful to the case and it did not pose any danger to the witness or others (4%), when the composite was being released to the media or other businesses (4%), and when the witness was involved in a bank robbery (4%). These procedures for use of the composite images were unrelated to experience, training, and composite procedures.

Officers were then asked how they determine whether or not the composite is a good representation of the perpetrator (open-ended). Ninety-eight percent indicated using witness feedback and satisfaction to determine composite quality, 32% indicated comparing the composite to the suspect's appearance, 7% said the credibility of the witness is used to determine composite quality, 7% responded that they compare multiple sketches between witnesses, 4% said they compare the facial composite with the witness' verbal description, 4% said they compare the facial composite with surveillance video that includes the culprit, 3% looked at how effective the composite was in the investigation, 3% indicated that there is a check on whether the composite constructed resembles anyone in the location where the sketch was created, and 1% reported they use the prosecution's feedback to determine composite quality. These evaluation criteria did not vary by jurisdiction, and were unrelated to the other variables under study.

When asked what procedure is followed when the witness indicates a low degree of satisfaction with the facial composite (open ended), 53% said they allow the witness to modify the facial composite, 28% indicated they ask the witness to construct a new composite, 16% said that they note the inaccuracies, save it in the case file and do not distribute it, and 2% indicate they change operators and have the witness re-create the composite. These responses did not vary by jurisdiction or the other variables reported here.

Legal challenges

Officers were asked if the composites made in their agency had ever been questioned or ruled invalid in court. Only 8% (N=13) indicated that their composites had been questioned or ruled invalid. When asked on what basis they were questioned or ruled invalid, six officers reported that there was a problem with the resemblance between the facial composite and the defendant, four officers reported that training and standard procedures for creating composites were questioned, one responded that the defense questioned the facial composite, one responded that the investigator was accused with interfering in the composite procedure, and one indicated that there was a question about whether the witness was shown a photo of the suspect prior to creation of the composite.

DISCUSSION

The present research sheds light on police investigators' use of facial composite procedures in everyday practice. It is important to note two caveats in interpretation of this research. First, our results reflect a small return rate (approximately 10%), but there is no way of determining whether our data reflect a sampling bias. Second, our data are limited to self-reported responses. As with all surveys,

these results do not reflect the authors' direct observation of police in the facial composite construction process and we are not necessarily privy to investigators' information about selection criteria and training issues, so we are limited entirely to what the respondents to the survey have indicated.

Less than half of our respondents indicated relying on a forensic artist for facial composite purposes, with state police indicating the greatest likelihood to have artists on staff. We can speculate that this is the case due to the limited number of qualified artists available and the costs associated with employing or contracting an artist, as well as the growing use of modern technology. A large proportion of investigators indicated that they currently use or have used one of the computerized forms of facial composite construction on the market today. The most popular systems identified in the survey were IdentiKit 2000 and Faces 3.0. This result is not surprising considering their perceived advantages over both the traditional tools, as well as sketch artistry: they are relatively inexpensive, portable, easy to use with little training, and produce high-quality facial images. Based on this, it is likely that these systems are an attractive alternative to non-computerized tools for those agencies/jurisdictions who do not use forensic artists to create composite faces. The growing popularity of these systems among law enforcement is unfortunately in contrast with the empirical literature showing a significant advantage for the use of sketch artistry over either manual or computerized composite technologies (Ellis et al., 1978; Frowd et al., 2005a; Laughery et al., 1977; Laughery & Fowler, 1980), as well as a body of research indicating some problems with composite systems' production of accurate facial likenesses. Interestingly, despite the popularity of the computerized systems among our respondents, officers' overall satisfaction with the systems they reportedly use was only moderate. While satisfaction with sketch artistry was the highest, officers' satisfaction with the two most widely used computerized systems was only slightly above average.

The selection criteria for choosing to implement one particular composite system over another varied widely across respondents but were not statistically different between jurisdictions. A multitude of factors reportedly go into making that decision, ranging from the cost of the tool and the training, to end product quality, ease of use, and portability. Many respondents indicated that investigating officers, division heads, or the department itself makes the decision, but did not elaborate as to the factors upon which that decision is based. These findings are not entirely unexpected, as we can assume that those agencies that began using one of the traditional manual composite systems years ago naturally "upgraded" to the newer computerized systems, and were probably happy to do so given their perceived improvements in many ways over the traditional systems.

There appears to be no standard training programs for officers to learn to use facial composite systems effectively. Unlike police forces in the U.K. that undergo rigorous training to learn facial composite construction procedures based on a standardized training program (Association of Chief Police Officers, 2005; Davies, Shepherd, Shepherd, Flin & Ellis, 1986), officers responding to our survey reported learning to use facial composite systems from numerous sources. These sources included professional instruction, a fellow police officer, written guidelines, specific rules, and self-instruction, and many of these methods were positively correlated with officers' degree of experience regardless of jurisdiction. These are important findings in light of a literature that demonstrates a relationship between a composite operator's level of expertise or experience with constructing facial composites and the accuracy with which the facial composite represents the intended face (Davies & Little, 1990; Davies et al., 1983; Ellis et al.,

1978). Empirical research investigating the utility of composites and expertise has not used police officers as research participants so as to specifically examine police expertise, which provides an interesting avenue for future study.

Our results indicate that relatively few agencies have developed and implemented standardized procedures for interviewing witnesses for the purpose of constructing a facial composite, and county jurisdictions are less likely to have a standard procedure than other jurisdictions. We know from the research literature that detailed witness interview procedures like the Cognitive Interview (Fisher & Geiselman, 1992) and the Guided Memory Interview (Malpass & Devine, 1981) requiring witnesses to elaborate on the context of a witnessed event can significantly impact the amount and accuracy of information recalled about a perpetrator and an event. Yet, only 12% of officers in this survey indicated using the Cognitive Interview with crime witnesses. No other officers reported having used any other type of procedure patterned after structured interviews that are designed to enhance witness memory.

Similarly, few law enforcement agencies seem to have developed a standard witness interviewing procedure concerning composite construction when multiple individuals have witnessed an event, although city police reported conducting independent interviews of witnesses more often than the other jurisdictions. Procedures reportedly used included interviewing witnesses separately, interviewing witnesses together, using one composite operator, and using a different composite operator for each witness. Interestingly, in many jurisdictions one composite operator is responsible for interviewing more than one witness and creating multiple facial composites of the same culprit. On one hand, the use of one composite operator would remove any differences between the quality of various witness composites due to operator expertise. On the other hand, this procedure may or may not produce accurate depictions of what each witness had in mind concerning the appearance of the culprit, depending on whether the first witness's description and subsequent depiction of the culprit influenced the operator's second depiction based on the second witness's information, and so on.

The research literature provides little guidance for law enforcement regarding procedures for interviewing multiple witnesses for the purpose of composite construction. Bruce, Ness, Hancock, Newman, and Rarity (2002) explored the use of an interesting and innovative approach concerning this issue. They addressed the question of multiple witnesses by comparing the accuracy of several independent facial composites, each constructed by a separate witness, with a "morphed" facial image that incorporated all four of the individual composites into one new facial composite. When shown to naïve judges, the new morphed composite was rated as being more similar to the culprit's appearance than were any of the individual composites. These results are encouraging, and provide an interesting avenue for future research to explore the efficacy of the variety of procedures reportedly used by police to interview multiple witnesses. Similar to psychologists' recommendation that eyewitness lineups and photospreads be conducted by a naïve investigator (Wells et al., 1998), perhaps a similar approach should be considered for facial composite construction procedures when multiple individuals have witnesses a crime so as to avoid any undue influence.

Results of this survey indicate that sometimes officers permit witnesses to retain a copy of the facial composite they create after it is constructed and when the investigation is ongoing. There is a serious problem with this procedure. Facial composites may bear a great resemblance or very little resemblance to the actual culprit. Therefore, repeated exposure to a facial composite risks contaminating the

witness's facial memory. Little is known empirically about how well a witness's memory for the culprit can be preserved in the face of repeated display of a composite they have constructed, or to what degree the facial image represented in the composite will interfere with his/her memory for the culprit's face and affect subsequent identification attempts. Recent research by Topp, McQuiston, and Malpass (2003) investigating this issue found that when witnesses made a composite and then repeatedly viewed it during the next week, there was increased confusion (i.e., interference) between the target face and the composite in a subsequent identification task, resulting in a decrement in identification accuracy as compared with a no-repeated viewing group. Considering this is a possibility when police allow witnesses to retain a copy of the facial composite they have created, it is important to pursue research regarding the potential detrimental impact of repeated composite viewing on lineup identifications.

About one-third of respondents reported that they determine whether or not a facial composite is a good representation of the culprit based on the similarity between the composite and the suspect apprehended. This strategy is obviously problematic when the suspect matches the general physical appearance of the perpetrator, but is in fact innocent. Even when a witness indicates a large degree of satisfaction with the similarity of the facial composite to the culprit (which is how the majority of respondents indicated determining the accuracy of composites), composites are only designed to, at best, reflect a person's physical appearance in a general sense in order to narrow down the pool of potential suspects. Interestingly, some respondents indicated that when the witness is not satisfied with the facial composite they construct, it is put into the case file and not distributed. There is no way of knowing what course the investigation then takes, whether the credibility of the witness is then in question, or what is the likelihood with which the witness would be able to subsequently identify the culprit from a lineup after the composite task did not prove fruitful.

A slight pattern concerning jurisdiction differences in the use of facial composites emerged in our analysis: state police reported creating more composites per month than the other jurisdictions, indicated a greater likelihood to have artists on staff than city police, and reported using purely "random" interviewing procedures for the purpose of composite production less often than county police jurisdictions. These results are not surprising given that state police forces are generally larger with more officers and resources than other jurisdictions. Indeed, depending on resources, state level jurisdictions will frequently provide support for the smaller local and regional forces in terms of various police practices (e.g., eyewitness procedures, crime/fingerprint laboratories). However, the jurisdictional differences we found here do not necessarily lead us to conclude that one is getting closer to good practices than another.

Few studies have actually used police officers or active forensic artists as participants in facial composite research (see Frowd et al., 2005a, 2005b, for exceptions). Outside of the information gained in this survey and some anecdotal accounts (e.g., Boylan, 2001), very little is known about the decisions made and procedures implemented by the professionals who routinely interview witnesses and perform facial composite procedures. For instance, given the empirical evidence discussed above suggesting that people who are more experienced at composite construction produce more accurate composites than those with less training, it makes sense to pursue the participation of the experts in research studies and investigate their practices directly. The lack of research on police- and forensic artist-performed facial composite procedures is a major gap in the literature; indeed, this type of

research would decrease the distance from empirical science to applied work.

These results suggest that U.S. police agencies vary a great deal in the procedures used to collect eyewitness evidence with respect to the facial composite procedures implemented. Many agencies reported having no explicit selection criteria for choosing a composite system, no standardized interviewing procedures for creating composites, and that formalized training for creating composites is often not required. These are important findings in view of the predominant role of mistaken eyewitness identification in cases of erroneous conviction of innocent people relative to other causes (Scheck et al., 2001). Advancements in standardizing the procedures for gathering, preserving, and interpreting memory-based eyewitness evidence have recently been made by means of a U.S. Department of Justice initiative in response to the growing number of DNA exoneration cases (Technical Working Group on Eyewitness Evidence, 1999). The development of standardized composite construction procedures and police training across jurisdictions is also needed, as are continued efforts to research the best ways to elicit facial recall from eyewitnesses.

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