Computerized Facial Composite Systems in Law Enforcement

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Introduction

Eyewitness identification has always relied on facial composite images to begin the investigating process for law enforcement. When a witness is unsure who the suspect is, the witness is asked to participate in a multistep process of constructing a facial image through memory that resembles the offender. This process includes describing the facial features and selecting specific aspects of the face to produce a constructed version of the offender to make a facial composite. Law enforcement agencies typically relied on forensic/ sketch artists in the past but this technique is now being replaced by computerized systems that are controlled by a police officer (McQuiston-Surrett, Topp & Malpass, 2006). Computerized facial composite systems allow the identification process to be conducted in an easy, more efficient manner which increases the chances of a precise facial composite. However, there are many factors that contribute to the accuracy of facial composites developed by a witness that need to be addressed before relying heavily on the new development in technology.

Background Information

Facial compositing has greatly developed over the years in law enforcement agencies. While some may still use sketch artists to develop facial composites, other agencies have relied on the advancement in technology to do the work for them. Facial composites are used in various ways by the law enforcement including informing the public of possible threats and identifying a suspect through wanted notices. The Burlington Police Department is one of the agencies taking advantage of computerized facial composite systems which allows an officer to generate a witness' interpretation of a suspect (Papandrea, 2009). Sketch artists are not very reliable because it is difficult to capture the exact facial structure being described by the witness. Although there are some flaws with the system, the composite drawings allow the police with a

valuable aid to identify the perpetrator (Papandrea, 2009). One of the most well developed systems being used by law enforcement agencies today is the EvoFit software used in Britain. This system is constructed on a universal face coding scheme and an evolutionary interface which allows the witness to choose from a large selection of faces that seem to fit description of the offender (Rogers, 2007). Research has been conducted to determine the accuracy of the EvoFit. Currently, it has surpassed the performance of any other composite systems (Rogers, 2007). The traditional systems conduct the investigation by having a witness give a full description of the offender and then individually select certain facial features to construct the face (EvoFit, 2013). However, this technique is hard for the witness to overcome under a significant amount of pressure. EvoFit instead attempts to get the witness to recognize the face, rather than recall, by starting with a set of faces that have been randomly compiled from different features then creating variations of that face until the final outcome is reached (EvoFit, 2013).

Potential Benefits

There are many forms of facial composite construction systems that are designed to make constructing a facial composite easier than the traditional manual style. Computerized versions include a more thorough facial feature catalog unlike the traditional system as well as the ability to manipulate facial features in the facial space, a beneficial skill not offered by the traditional techniques (McQuiston-Surrett, Topp & Malpass, 2006). These availabilities offered by the systems allow the identification process to be less complicated for the witness which provides a better chance of accuracy to identifying the perpetrator. Systems such as the EvoFit allow eyewitnesses to recover memory of an offender's face easier than what is offered by a sketch artist because the system is set up to provide witnesses an easier way to tap into their memory to create an accurate facial composite. EvoFit uses mechanisms that construct the most identifiable

set of features that would be easily recognized by other people such as police or citizens who see the facial composite (EvoFit, 2013). It is very important for the law enforcement agencies to develop the most accurate facial composite to avoid misleading them in the wrong direction. Computerized facial composite systems offer a better chance for an accurate facial composite. Unfortunately, these new advancements in technology have not proven to be more efficient than the older method of facial composite because of factors that affect the memory of the witness and the lack of procedural steps.

Issues

Although the computerized facial composite system has improved over the years by developing more realistic faces, the witness identification process revolves around many factors that contribute to the inaccuracy of the identification (Carson, Milne, Pakes, Shalev & Shawyer, 2007). The problems don't seem to be in regards to the software offered by the systems but rather in the facial composite process (Rogers, 2007). The use of computerized facial composite systems requires a procedural process that provides the participants to make accurate choices. However, these procedures are not fully used by the law enforcement which can disrupt the outcome. In a survey, law enforcement agencies were asked if a standard witness interviewing procedure was used for the creating of a facial composite, 55% of officers reported using a standard procedure and 45% did not, this result was also consistent across jurisdictions (McQuiston-Surrett, Topp, & Malpass, 2006). The percentage of agencies not using any type of procedure significantly affects the accuracy of the result. This is an ethical problem because it does not provide an even playing field for witnesses. The composite system is largely used as an elimination system rather than an exact portrait of the suspect which is often misunderstood. Dr. Harry Wechsler, an expert on biometrics and face recognition at George Mason University,

believes that although there are issues regarding the system efficiency increases with the use of facial composite systems because law enforcement is able to narrow down the number of suspects which therefore increases the accuracy (Rogers, 2007). Wechsler stated, "Numerous factors affect the accuracy of eyewitness composites: A delay following the event, exposure time to the subject, target distinctiveness, emotion, stress, all play an important role in the composite produced" (Rogers, 2007). These factors are a social problem with the use of the computerized facial composite systems because it is not the technology that is inaccurate but rather the amount of pressure and reliability given to a witness. A major concern with facial composite systems is the potential for negative consequences of a bad composite (Rogers, 2007). Having an inaccurate composite can lead to social and legal problems such as wrongfully accusing a suspect and imprisoning an innocent person.

Conclusion

Facial compositing has developed significantly over the years. From beginning with a sketch artist only using pencil and paper to being computerized, the use of facial composite systems has been taken advantage of by many law enforcement agencies. The computerized system offers many features that are not possible by a sketch artist. These features include skills that make the facial composite process easier for participants. Although there are some minor issues with the use of the system, there are also many beneficial aspects to the new advancement in technology. The technological advances offered by EvoFit is a great example of how the systems work and provide law enforcement with high tech software that allows witness to tap into the recognition part of the brain rather than attempting to recall an exact facial image. Computerized facial composite systems growing popularity will continue to improve and

produce more issues but with the help of more informed procedural steps these issues can be avoided.

References

Carson, D., Milne, R., Pakes, F., Shalev, K., & Shawyer, A. (2007). Applying psychology to criminal justice. England: John Wiley & Sons Ltd.

This source only included a short description of computerized facial composite systems. However, the material offered by this book was very useful and informative which influenced the inspiration of this paper.

EvoFit. (2013). *Evolving facial composite imaging*. Retrieved February 23, 2013 from http://www.evofit.co.uk/how-it-works

The webpage offered a better viewpoint of how exactly a facial composite system works. It was interesting to see the different aspects included in the software that provide law enforcement with a significant advantage during the eyewitness identification process.

McQuiston-Surrett, D., Topp, L., & Malpass, R. (2006). Use of facial composite systems in us law enforcement agencies. *Psychology, Crime & Law*,*12*(5), 505-517. doi: Retrieved February 22, 2013 from http://dx.doi.org/10.1080/10683160500254904

This source included a lot of useful facts including eyewitness identification, police training, and surveys. The surveys provided a better understanding of how computerized facial composite

systems are used today and where law enforcement agencies stood in regards to investigative procedures and training.

Papandrea, R. (2009, Jan 25). PICTURE IMPERFECT: Computer composites of criminal suspects don't always resemble the people police are after, but it gives law enforcement a place to start. *McClatchy - Tribune Business News*. Retrieved February 24, 2012 from http://search.proquest.com/docview/461530648?accountid=14541

It was interesting to see how a specific law enforcement department benefited from the use of facial composite systems even though the system is not perfect. The newspaper article included an insight of what real police officers thought about the system.

Rogers, D. (2007). Forensic composite imaging. *Law Enforcement Technology*, *34*(11), 76-83. Retrieved February 23, 2013 from http://search.proquest.com/docview/229813727?accountid=14541

This source provided me with the most information about computerized facial composite systems. It was interesting that it included the research done by a George Mason professor. This journal article was used to explain the issues with the systems.