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Collecting, obtaining and preparing reference material for the purpose of identification of a person or a deceased based on visual recordings

Summary

The main aim of this paper is to provide the guidelines for the activities necessary to obtain valuable and fully eligible reference material for the purposes of identification of a person or a dead body based on visual recordings. The paper elaborates on the relation between evidence material and reference (secondary) material. It also proposes a hierarchical categorization of types of reference material. The illustrations present examples of properly prepared reference material (including photographs of a person) containing also evidence material. Moreover, the paper specifies the relevant legal regulations and persons authorized to photograph a person and stages of taking photographs. It also names the factors that affect technical and visual quality of the collected material. The article also provides the guidelines for the collection of neutral (unstaged) reference material, as well as finding the sources that may be referred to in order to obtain access to such material.

Keywords storage of reference material, collection of reference material, identification of persons and deceased based on visual recordings

Introduction

The article is a part of a more comprehensive study regarding the issues connected with the preparation, obtaining and collection of reference material for the purpose of identification of persons and deceased based on visual recordings. First of all, it is worth mentioning that the studies carried out in this area are not innovative. They were performed (based on methods and proceedings similar to the modern ones) already in the seventies by the experts from the Forensic Department of the Militia Headquarters, subsequently by the Central Forensic Laboratory of the Polish Police Headquarters, and currently by the Central Forensic Laboratory of the Police in Warsaw. There is a growing demand on such type of studies, since image recording devices have been omnipresent in both private and public spheres of life. Before I concentrate on the issues connected with reference material, I would like to present the underlying knowledge about evidence material.

Types of evidence used for the identification of persons and deceased based on visual recordings

The basic division of the types of evidence used for the identification of persons and bodies based on visual recordings, colored or monochromatic:

1. Visual recording (motion), such as digital and analogue VHS recordings.
2. Visual recording (still), such as graphic files, digital photographs, analog photographs, colored or monochromatic.

Re. 1 Digital and analog VHS recordings may be divided into the following categories in terms of their origin:

- 1.1. CCTV recordings (indoor and outdoor), referred to as surveillance: municipal (in the areas that require particular surveillance, e.g. city centers, four-legged cross-intersections, busy intersections, etc.); industrial (warehouses, storage halls, etc.); institutional (public institutions, educational facilities, etc.) banking, including ATM machines; installed in public places (parks, playgrounds, museums, etc.); installed in shops or at gas stations, etc.
- 1.2. Recordings made by law enforcement bodies (police, municipal police): during sports events

(e.g. football matches), protests, marches, demonstrations, assemblies, etc.

- 1.3. Occasional recordings (purposeful, accidental): made by families, at integration meetings, gatherings (members of association, unions, clubs, etc.); and other.

Re. 2 Recordings such as graphic files, digital photographs or analog photographs may be divided into the following types in terms of their origin:

- 2.1. Single photographs selected out of a motion recording;
- 2.2. A photograph of a living person: taken from a document (e.g. identification card, passport, driving license); occasional photos taken with an image recording device (e.g. a mobile phone).
- 2.3. A photograph of a dead body taken: at the site where the body was found (open space, indoor); at a prosectorium (before or after post-mortem examination).

This division may not be exhaustive but in time it may evolve and be modified. However, at the current development stage of motion pictures and still images recording techniques and the accompanying factors it seems sufficient.

The types and preparation method of reference material for the purpose of identification depending on the type of evidence

The reference material is always secondary to the evidence material. Only based on the features of the evidence it is possible to select, obtain, sample and collect reference material.

The hierarchical categorization of reference material:

1. Neutral reference material – no connection with ongoing proceedings, such as: photographs of individuals taken from documents or other sources, requested from an institution and/or a family or photographs and/or occasional visual recordings obtained from the family or relatives.
2. Mugshots as reference material – a set of mugshots, provided that the individual has a criminal record and was entered into the National Police Information System (KSIP). It should be underlined that in some cases it is the only reference material that can be obtained.
3. Reference material obtained from a selected person – a set of photographs:
 - **REQUIRED:** photographs must be taken for the purposes of the identification on the basis of evidence material. Before they are taken, it is necessary to analyze of individual's appearance, posture of body and head, the interior, as well as the position of lens of camera/recording device.

- **OPTIONALLY:** taking a rotating photograph of individual's head in the same pose as visible on the evidence material, as well as a photograph of the body shape (front, back, left-side, right-side);
- **ADDITIONALLY:** similar to mugshots (en face, the right and left profiles, right and left half-profiles. Additionally, the body shape (in case it is visible on the evidence material) and its characteristic anatomical features (e.g. any missing of extremities, postural defects), as well as photographs that should show any distinguishing marks, such as tattoos, scars, hands with amputated fingers or parts of fingers.

Role of the type of evidence material in the preparation of reference material

Example 1

Evidence material – from a few to a few dozens of single images from a visual recording or photographs of one individual, depicting various head poses. Figure 1 presents evidence material (see Polish version).

The reference material should contain the material obtained from a selected individual in the form of a set of photographs:

- **REQUIRED:** in case of this kind of evidence – the shots must be taken on the basis of evidence material (Fig. 2 presents reference material obtained from the selected individual; see Polish version).
- **ADDITIONALLY:** photographs should be taken similarly to the mugshots (Fig. 3 presents reference material obtained from the selected individual; see Polish version).

In case it is impossible to gather such a material, the following items should be requested:

- Mugshots as reference material – provided that the individual has a criminal record and was entered into the National Police Information System (KSIP) (see example 2),
- **ADDITIONALLY:** extensive neutral reference material (see example 2).

EXAMPLE 2

Evidence material – an occasional photograph of individual (Fig. 4 presents evidence material; see Polish version).

The reference material should contain the material obtained from a selected individual in the form of a set of photographs:

- **REQUIRED:** in case of this kind of evidence material – the shots should correspond to the evidence material (Fig. 5 presents reference material obtained from the selected individual; see Polish version).

- **OPTIONALLY:** rotating photographs of the head of selected individual (Fig. 6 reference material obtained from the selected individual see Polish version).
- **ADDITIONALLY:** photographs similar to mugshots (Fig. 7 Reference material obtained from a selected individual; see Polish version).

In case it is impossible to gather the material, the following material should be requested:

- mugshots as reference material or, if they are not available:
- occasional photographs taken from documents in order to obtain extensive neutral reference material (Fig. 8 Reference material: (a) mugshots; (b) neutral; see Polish version).

Example 3

Evidence material – a photograph from an identity document.

Reference material should contain: a set of photographs obtained from a selected person:

- **PREFERABLY:** shots corresponding to the view shown in the evidence material (Fig. 9. (a) Evidence material; (b) reference material obtained from the selected individual; see Polish version).
- **OPTIONALLY:** taking a rotating photographs of the head of selected individual (see example 2);
- **ADDITIONALLY:** photographs taken similarly to the mugshots (see example 2).

In case it is impossible to gather such a material, the following material should be required:

- mugshots as reference material (see example 2) and/or if they are not available:
- neutral reference material (see example 2).

Example 4

Evidence – a photograph of an unidentified corpses taken at the site where it was found or at the prosectorium (Fig. 10 Evidence material; see Polish version).

The reference material should contain:

- mugshots (see example 2) and, or if it is not available:
- neutral reference material (see example 2).

Example 4

Research material – without indication of either the evidence or the reference material. One type of material contains from a few to a few dozen single images taken from a video recording or photographs. The other type of material also contains from a few to a few dozen single images taken from a video recording or photographs. Both types of material are subjected to selection procedure and matched in terms of the pose of individual's head.

Reference material: not available.

An individual is photographed in order to obtain the reference material

Taking photographs of an individual in order to obtain reference material requires, above all, proper photography skills of a person taking photos, particularly in portrait photography. Moreover, the photographer should use an efficient camera equipped with proper lens and a flash as well as have an access to a studio where the photographs can be taken.

Legal acts regulating photographing an individual in order to obtain reference material:

1. The Polish Penal Code of 6 June 1997, Journal of Laws of 1997, item 555, with further amendments Article 74 par. 2 point 1, Article 192a par. 1 and par. 3 regarding the possibility of taking photographs of selected person and in order to narrow down the number of suspects, photographing the defendant, or the suspect; Article 143 par 2 regarding writing the protocol, Article 150 par. 2 regulating the procedure of raising objections as regards the content of the protocol.
2. The Act of 6 April 1990 on the Police, Journal of Laws of 1990, with further amendments – Article 20 point 2a and 2b on sampling, obtaining, gathering, processing and using the information including personal data, such as photographs, drawings and descriptions of an image in order to carry out statutory tasks.
3. Journal of Laws of 4 January 2013, item 8 Resolution of the Minister of Internal Affairs of 31 December 2012 on processing information by the Police, section 5 par 30.1.2 with regard to the use of information, such as personal data maintained in police records (including law enforcement authorities and investigation units); Appendix 1 containing technical conditions and Appendix 6 containing a personal card file.
4. Journal of Laws of 16 February 2013, item 7: Instruction no. 3 of the Chief Commander of the Polish Police of 15 February 2012 on the performance of investigative activities by police officers – section 11 par 73 in the area of collecting, gathering and obtaining reference material by a police officer.
5. Journal of Laws of 2 October 2012, item 1090 Resolution of the Minister of Justice of 14 September 2012 on the devices and technical measures used to record image and sound for the purpose of court trial, as well as the method of storing, replaying and copying of recordings.

Persons authorized to obtain reference material

The persons authorized to take photographs in order to obtain reference material are the following:

1. the investigator, having photography skills as well as the access to proper photographic equipment and a studio, where the photographs can be taken;
2. a crime scene officer with the assistance of the investigator or based on the guidelines;
3. an expert in the field of photography; an expert in the field of reconstruction of appearance of persons and items or any other employees of a forensic laboratory trained by an expert in this field;
4. an expert in the field of identification of individuals and deceased based on visual recordings, in specific situations.

Stages of taking photographs of a person in order to obtain reference material

1. The analysis of the evidence material in terms of individual's body posture and/or head, as well as the position of the camera lens (this stage is carried out by an investigator or an expert in the field of identification of individuals or deceased based on visual recordings).
2. Preparatory activities:
 - preparation of the recording device (paying attention to its efficiency, the availability of the lens, flash, etc.);
 - preparation of the studio, where the photographs will be taken (paying attention to: uniform bright background, distance from the object, lighting, absence of any third persons);
 - preparation of accessories (e.g. a hat, scarf, glasses, etc.), provided that they are visible on the evidence material;
 - drafting a protocol of obtaining reference material.
3. Indicate the person to obtain the reference material;
4. Summoning the individual to be subjected to the procedure of obtaining the reference material – the individual is summoned by the investigator;
5. It is recommended to request a police officer to participate in the event;
6. Obtaining the reference material:
 - verification of individual's identity;
 - taking photographs of an individual, so that they correspond to the evidence material; rotating shots, shots similar to mugshots, photographs of characteristic features, such as tattoos, scars, birthmarks, hands with amputated fingers or parts of fingers or other, if applicable;
 - the analysis of the photographs in terms of their correctness (proper lighting, sharpness, and other parameters), individual's body posture and/or head, as well as the natural face expression, accidental or purposeful closing of the eyes, etc.
 - necessary improvements;
- filling in the protocol of obtaining reference material, placing signatures by the person obtaining the reference material, persons participating in the procedure and the person, from which the material was obtained.
7. Saving the photographs on a digital data storage device, such as a CD-R or DVD without alternations such as the change the type of a file, modifying the size or the resolution of the file. The saved file must contain the metadata that were recorded by the recording device (the preferable format is RAW or its equivalent compatible with a given device).
8. Copying the images from the primary digital data storage device (usually a re-writable device that allows data deletion, e.g. a memory card of the recording device that was used to photograph the individual) to a secondary carrier in compliance with the rules specified in the Resolution of the Minister of Justice of 14 September 2012 on the devices and technical measures used to record image and sound for the purpose of court trial, as well as the method of storing, replaying and copying of recordings.
9. In the case of obtaining reference material from more than one individual in order to compare it with the evidence material, the photographs of each of the individuals must be saved on separate devices or saved in separate folders (marked with the first name and surname of the photographed individual), if they are saved on the same devices.
10. Verification whether the files were saved properly on the devices.
11. Sending the digital device with the reference material and the protocol of obtaining reference material or its copy, identification record of the secondary digital device along with printed checksums and the evidence material, accompanied by the request to carry out a casework in the field of identification of persons and deceased based on visual recordings by an expert in forensic laboratory.

Factors affecting the technical and visual quality of reference material

It is the person obtaining the reference material that has the largest influence not only on its technical and visual quality but also on the entire process. Specifically, it is their knowledge and practical skills in photography. Other factors that determine the initiation of this procedure include, as mentioned before: efficient equipment, access to a studio, where the photographs can be taken. In case of failure to meet these conditions, it is not possible to obtain the reference material. However, even the fulfillment of mentioned conditions does not guarantee successful obtaining of reference material of good technical and visual quality.

Other factors that affect the technical and visual quality of the obtained reference material could be divided into those that emerge during the process, and those that emerge after the completion of the process (connected with archiving and dispatching). At the same time, I would like to mention that technical and visual quality may be considered independently as two separate elements (e.g. an invisible part of the face covered by a garment will negatively affect the visual quality) or as elements strictly interdependent (e.g. in case when a small size and low resolution of the file, which determine the technical quality, make the image blurred and unclear affecting its visual quality).

1. Factors affecting the technical and visual quality that emerge in the course of obtaining reference material include:

- technical parameters of recording devices – including the type of matrix that determines the resolution; file format (the optimal ones are RAW or RAW-type, i.e. a raw file that typically avoids lossy compression, provided that the recording device has the option of saving the file in this format). However, if saving the file as a JPG is the only available option, the lowest possible compression, i.e. fine, should be selected (out of the most common selection: *fine*, *normal*, *basic*);
- type of lighting;
- setting the exposure parameters of the recording device, i.e. shutter speed, focal ratio;
- the position of recording device in relation to the photographed person corresponding with the view on the evidence material;
- the plane of photographed person's head position corresponding with the evidence material;
- framing of image – the frame should cover the entire surface, e.g. the whole person, person's head, excluding any additional elements in the background, such as sockets, lamps, parts of furniture, etc.
- the facial expression of the photographed person – checking if they are natural;
- mustache, the face of the photographed person – the verification whether the features match the evidence material

2. The factors affecting the technical and visual quality that play a role after the reference material has been taken:

- archiving files by saving them on a CD – without introducing any changes; the digital device should have the capacity allowing saving the files without the need to compress them;
- packing the digital device in a way that prevents damages.

Gathering neutral reference material, such as photographs and/or recordings – occasional or obtained from documents and other sources

Gathering neutral reference material requires time, patience, and creativity in order to find appropriate sources. The most valuable type of reference material is neutral reference material. In the case when it is impossible to photograph the selected individual or the individual has not been entered into the National Police Information System (KSIP), it is the only available reference material. However, it should be underlined that it is extremely difficult to collect any neutral reference material that would correspond with the evidence material in terms of quality and facilitate the identification examination. Therefore, it is essential to acquire as extensive material as possible.

Legal acts regulating the collection of reference material

1. Act of 6 April 1990 on the Police, Journal of Laws of 1990, with further amendments, Article 20 pars. 2a and 2b, see point 1 “Legal acts regulating obtaining reference material [...]”;
2. Journal of Laws of the Polish Police Headquarters of 6 April 2013, item 28; Decision no. 125 of the Chief Commander of the Polish Police of 5 April 2013 on the operation of the National Police Information System – section 5 par. 14.1. and 3., par. 16.1 and 2, par 20.1 and 3, par. 21. 1 and 3 with regard to the content of the system and who may be entered into it in the course of the preparatory proceedings.
3. Journal of Laws of 2013, item 8, Resolution of the Minister of Internal Affairs of 31 December 2012 on the processing of information by the Police – section 4 par. 25.1. with regard to gathering and obtaining information, including personal data, from databases kept by other bodies or units, including a natural person, section 5 par. 30.1 and 2, see point 3 “Legal acts regulating obtaining reference material [...]”, appendix 6, template of the personal card file.
4. Journal of Laws of 16 February 2013, item 7, Instruction no. 3 of the Chief Commander of the Police of 15 February 2012 on the performance of investigative activities by the police officers – section 11 par 73, see point 4 “Legal acts regulating obtaining reference material [...]”.

Sources of data that might be used as neutral reference material necessary for identification examination

Sources that the investigator might request to grant access to materials that might be used as neutral reference material, such as photographs of a person, can be divided into two categories:

1. Police sources – National Police Information System data base containing, among others, personal card files with images of recorded individuals;
2. Non-police sources:

- a) entities that have access to information in their databases;

Non-police entities gather various forms, such as requests, applications or questionnaires with attached photographs of submitting person. Institutions and facilities that keep such documents and may be requested by the police to grant access to them are the following: city or regional halls, public records census offices – request to issue a document confirming identity, request to issue a temporary identity document, request to issue an identity card; city or regional halls, passport office – request/form to issue a passport; city hall, regional public transportation office – request to issue a driving license; educational facilities: elementary schools, gymnasiums, high schools, higher schools – student's personal files; employers – personal questionnaires, CVs.

It should be mentioned that such kind of material can have certain defects that might affect the final conclusions of identification. In the worst case scenario, the material may be excluded from the examinations. Such neutral material might bear defects that the investigators have no influence on, e.g. inadequate type of material showing different head poses; photographs taken in the distant past; poor visual quality of photographs; retouch of photographs by a photographer that lead to loss of group and, in the worst case, even individual features.

- b) natural persons

Such natural persons are usually family members or relatives who may have access to some neutral material, such as photographs from documents, occasional photographs (analog and/or digital); video recordings (analog and/or digital).

Summary

Some of the readers of this article will certainly be able to refer the proposed categorization of reference material and guidelines regarding its collecting, obtaining and preparation, to a different area of forensic science, i.e. handwriting examination. It is obvious that identification examinations, irrespective of their type, are governed by general similarities. While becoming familiar with examinations in the field of identification of persons and deceased based on visual recordings, I have discovered that my skills, experience and knowledge on handwriting examination are very useful. Working on the caseworks, I have learned to appreciate the value of reference material that has been properly collected, obtained and prepared. At the same time I have realized how difficult it is to collect the material properly and how much effort must be invested into obtaining the material from the selected person (except for the cases when the collected or obtained reference material sent for the identification examination indicates the negligence on the site of requesting party). Having consulted with requesting parties I have realized that there is a need for guidelines, recommendations, an algorithm of action or trainings, etc. that would make it possible to obtain the reference material as effectively as possible.

I made an attempt to share some of my experiences and used the already developed practices that had proven to be effective, taking into consideration the specific nature of identification of persons and deceased based on visual recordings. The final draft of my paper presents a tool for the collection, obtaining and preparation of reference material for identification of persons or deceased based on visual recordings.

Finally, it is worth mentioning that the evidence material from the moment it is collected, provides the same (unchanging) amount of information and its scientific value cannot be influenced. However, reference material CAN be influenced, as it is the involvement of the person who prepares it that has the greatest effect on its scientific value.

Source

Figs. 1–10: podinsp. Wojciech Sokół, Forensic Laboratory, Regional Police Headquarters in Olsztyn

Translation *Rafał Wierzchosławski*