INTERSUBJECTIVITY IN RESEARCH ON THE EXAMPLE OF FORENSIC SCIENCES METHODS

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Abstract
In each of the legal proceedings, in which expert evidence is carried out, a major concern is the assessment of the evidential value of expertise. Judicial institutions, while making decisions, rely heavily on the expertises, because they usually do not possess 'special knowledge' from a certain fields of science. Expert's opinion is therefore an important evidence in the case, i.a. on this basis, judicial institutions make their decisions. It can have far-reaching consequences for the parties of the trial. Within each expert report, expert applies a chosen method, which enables the answer to the questions raised by the judicial institution. However, methods used within various forensic sciences are characterized by a varying degree of intersubjectivity. Experts dispose relatively great freedom during the process of trace analysis, which often results in differences in the shaping of the conclusion. Recent studies indicate a number of factors that are responsible for this undesirable situation. One of them may be too low rank of law regulations, harmonizing the methods used by forensic experts in various fields. In many branches of forensic sciences, specific methods or standards of working there are still not developed and there is lack of legal regulations relating to this matter. From the point of view of legal authorities, whose task is to assess the probative value of the expertise, it is an important practical problem. These authorities are not able to check or trace the way of the expert's proceedings.

Keywords: Research methodology, verification of sciences methods, reliability of methods, intersubjectivity of forensic sciences methods.

From the point of view of each legal proceeding, in which expert evidence is conducted, the main and significant problem is evaluation of these expert reports. State authorities, like judges, while making their decisions, to a large extent suggest expertise because they usually lack the so-called 'special knowledge' relating to specific fields of science.

Expert opinion is often very important evidence in case and, among others, on this basis the judicial authorities adjudicate. It can create far-reaching consequences for the parts of trial.

Within each expert report, the expert uses a method of their choice that allows to answer the questions raised by state authorities. However, the methods used by experts from various forensic sciences are characterized by a different degree of reliability. It means that different values should be assigned to expert's reports, depending on knowledge about the extent of their reliability.

All methods which are used by experts can be called 'scientific methods'. The term 'scientific method' can be understood in two different ways: as a subject of study or as a research tool. In the basic meaning, a method is a developed form of proceeding used to obtain the results of the study. But it can also be a subject of study itself – it can be validated, modified, improved, etc. For instance, a method in this meaning is the method of estimation of postmortem interval on the basis of body temperature. According to the second approach, scientific methods are general rules of conducting studies which are used by scientists as an instrument for a particular method (in the meaning of study subject). An example can be the selection of appropriate test, data collection in the form of surveys, preparation of participants for study, etc. Methods are universal.

In practice, it is hard to separate these approaches. In the publications, from various branches of science, multiple different definitions of "scientific method" appear, which often connect elements of both the possibilities of understanding it. For aims of this report and taking into consideration scientific
context, I have decided to create my own definition of this term through modification and supplement of those already present in the literature.

Scientific method is a set of rules, assumptions and means which indicate a way of procedure used in order to achieve the results of the study. Scientific method is intended to show repeating model or scheme of working of any subject that uses it, leading to the achievement of the expected results. However, the use of a particular method should be in progress, in accordance with accepted rules, by using appropriate means and the same conditions. It has to be consistent with assumptions of empirical method. If the method is wrongly selected or over-modified, it can result in receiving unreliable results which are burdened with high error rate.

Introducing and improving every method results from the need of expanding researchers’ knowledge and desire to reach to the so-called ‘objective truth’ within the studies being conducted. Although the objective truth cannot be reached, the right method can bring us closer to it. That is why, the methods aim at indicating possibly objective and close to the truth results, that fully reflect the reality. In order to obtain possibly objective results, the method itself should be objective. Nevertheless, it is difficult to indicate its criteria. Now, it can be assumed that the objectivity of the method depends on its verification. The features of the method, that need to be found, should be measurable and verifiable. The verification of the method can be carried out by analyzing the degree of its reliability.

Each method, which is commonly used, should be characterized by reliability which means that its results should be reliable.

Reliability of method can be understood in terms of its precision and accuracy. I decided to show and explain the differences between these two approaches using two shooting targets. The picture on the left side shows what the intersubjectivity involves. It demonstrates a highly precise collection of results of shooting at a target. The handed shoots are in close proximity to each other but they don’t get in the central point, in the bull’s eye. It means that the results are precise but not accurate. Precision of results obtained by different people (assessors) who were using method is termed intersubjectivity.

The picture on the right side shows contrary situation. All shoots are near the center of target – they are accurate, however, they are further from each other, it means they are less precise.

The accuracy is the degree of compatibility of individual results with its real value. The precision, in turn, is defined as a degree of compatibility between individual results (dispersion).

Precision can be comprehended at, at least, three levels:

- **inter - rater reliability** – indicates the degree of repeatability of results given by different people using the same method,
- **intra - rater reliability** – indicates the degree of repeatability of results given by the same people using a particular method at time intervals,
- **inter - method reliability** – indicates the degree of compliance of results when a different technique or tools are used. Therefore, it is possible that a particular method is not accurate and
precise at the same time, but is only characterized by one of these features. Both features can be graded.

Therefore, the term of intersubjectivity is closely related to the precision in the inter-rater reliability, namely, with the precision of results obtained by different people using a particular method in similar conditions.

The intersubjectivity is expressed by a degree of compliance rates (results) of assessors (people who use the method), which indicates how precise were the obtained results in the group of similar subjects that were using the method. It allows to estimate a degree of the so-called 'inter rater reliability' of the method.

In order to conduct verification of a particular method, among others, it is necessary to check if the method is characterized by intersubjectivity. The higher the degree of intersubjectivity (and accuracy) is, the more reliable the results are created. It should characterize each of scientific methods. Validation of method in terms of these criteria allows to estimate its scientific value and usefulness of evidence in the context of the proceedings.

The first philosopher who noticed the necessity of objectivity of science was I. Kant. He indicated, that scientific theorems and theories should be objectively justified. They are like that, when they are understandable and verifiable by each subject/person, at any time. This necessity refers also to methods that have been used in the various sciences. The objectivity of method is based on possibility of its verification – validation in terms of intersubjectivity. Only that what can be examined in this scope could be the part of science. The necessity of science’s objectivism created by Kant involves widely-understandable principle of intersubjectivity which could be understood in two approaches.

**Intersubjectivity in terms of language** is defined as a feature of method (or scientific theorem etc.), which is based on understanding this method by each person who uses it. In order to verify the method or in order to be used by properly prepared researchers, the language of method should be clear and understandable for them. Although, many concepts, which originate from universal language are characterized by ambiguity (term has more referents), equivalence or lack of focus (vagueness), scientific language should aim for maximal precision.

Selection of appropriate terms and the context in which they are placed, should be known and understandable for qualified researcher, who engages the field of science to which the method belongs. Difficulties in understanding the method on the level of language could be eliminated by creating new definitions or adapting all concepts to existence of fluency between words. It can be achieved by introducing quantitative concepts, which allow to take into consideration a degree of intensity of the feature Only when the method is characterized by intersubjectivity in the scope of language, we can take into consideration method in other scopes.

**Intersubjectivity in terms of procedure** is understood as the possibility of using a particular method by any person. The method, which is controlled this way, could be played by researchers and the obtained results could be same or similar to the results obtained by other researchers who were using the method. The more similar to each other the obtained results are, the higher the degree of method’s intersubjectivity in the terms of procedure is. It should be taken into consideration, that using of the method should take place in the same circumstances and conditions, using the same instruments and without any arbitrary changes. Thus, the same scheme of proceeding should be applied. However, some universal factors on which the degree of inter-subjectivity depends can be observed.

The way of presenting the method is crucial. When its language is clear to the persons using it (intersubjectivity at a linguistic level), it results in a higher degree of procedural inter-subjectivity. Otherwise, using the method, that is incomprehensible, according to the scheme would be problematic. The method that is linguistically well presented is much more likely to be used correctly by another researcher, so it enhances the degree of procedural inter-subjectivity. That is why the emphasis is put on the linguistic way of presenting the method so that it is comprehensible, succinct and simple.

In the scientific methodology, there are two methods and techniques of leading studies used by researchers – qualitative methods and quantitative methods. The qualitative methods give more subjective results, where the measurements are not carried out, in the classic sense of the word,

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2 In another publications, intersubjectivity in terms of language is named ‘intersubjectivity in communication’ – [11]
contrary to the quantitative methods where the measurement is applicable. The qualitative studies use some tools or measurement techniques, which results in obtaining data in the form of figures. These studies aim only at learning particular situations or processes and their meaning. They do not give an opportunity to present results in the form of figures, but only in the form of description. Thus the evaluation criteria of these two approaches are different. The qualitative methods are assessed for reliability of obtained results, their dependability, possibility to be transferred and confirmability of discovered facts. The quantitative methods are assessed for their accuracy and precision, so reliability. Therefore, the methods of quantitative studies are inter-subjectively verifiable to a greater degree than qualitative methods. In case of qualitative methods, the inter-subjective verification may pose a problem as the description is the only available source of information. The way it is presented depends on the person. The differences in understanding the text may occur depending on individual features (e.g. knowledge, predisposition) of the recipient. The qualitative methods are more based on the work of human, while the quantitative methods use the instruments (tools, devices). When the person plays an important role in a study, the element of inter-subjectivity appears. Going further, the procedural inter-subjectivity of the method decreases.

Instrumental methods are also likely to be more intersubjective, so the quantitative methods which require standardized tools for the studies. A device can replace a researcher in the execution of the study and recording of the results, as well as in part of the interpretation of results. Usually, such study is more costly but it allows to avoid errors connected with the work of human and increase the degree of accuracy and precision of obtained results. The result of applying the method that uses measurement devices is the increase of its intersubjectivity degree.

The basic feature of all applied methods, inter alia, forensic sciences methods should be their intersubjectivity – it is an availability for any properly qualified person, both in the scope of language and procedure. Particular methods of forensic sciences are characterized by various degrees of intersubjectivity, and some of the methods which are commonly used, have never been examined in this scope. Some difficulties are caused also by estimation of a degree of method’s intersubjectivity, because there is still lack of proper scale.

Knowledge about a degree of intersubjectivity of any commonly applied method is highly significant, as it allows to determine its scientific value and usefulness in trial. In order to verify a particular method, it is necessary to examine this method in terms of intersubjectivity. Many of commonly used forensic sciences methods are not verified in the scope of intersubjectivity. There is still lack of consistent standards or conditions in preparing of expert reports. For this reason, there are voices of criticism and justifiable concerns of trial's parts about reliability of methods and about credibility of evidence they generate. It is indicated that verification of methods in this regard is necessary.

For the justice, it has a great meaning in the evaluation of evidence's values of expert reports, which are presented by experts from various fields of sciences. Furthermore, these types of research contribute to an increase of expert report's reliability and make them a more credible source of knowledge for state authorities.

REFERENCES


