Some aspects of forensic research on small texts

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Recently, software products have come to the aid of handwriting experts all over the world, which operation is based on: automatic measurement of segments between the points highlighted in compared signatures; registration of the execution time of individual fragments and comparison of the obtained data with samples; measuring the structural and geometric characteristics of objects, studying the distribution of the density of the dye in order to assess the pressure and pace; the principle of handwriting block structure.

This article purpose is to generalize and theoretically substantiate forensic research on small scope texts, highlight the key aspects of this research based on the analysis of forensic expert practice to optimize forensic research.

Definitions of handwritten small scope text and a short note, their types and characteristics of differentiation are given. Components determining the small scoops of information about handwriting in the studied manuscripts are noted. Classification of small scope manuscripts is considered and the reasons that complicate research on these objects are analyzed. Attention is focused on the fact that referring small scope manuscripts to uninformative handwriting

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objects does not mean interdependence and unambiguity of these concepts. The factors determining the degree of information content of objects are given. Methodology specifics of research small scope texts are highlighted and the main aspects of the forensic research of short texts and handwritten notes are presented.

Efficient approach to solving identification issues of forensic examination of small scope objects is proposed. Examples of the use of traditional and unconventional methods for the forensic research optimization of short handwriting objects, taking into account a specific forensic situation are given.

Keywords: *small scope texts; informativeness; research methodology specifics ; traditional and unconventional methods; forensic expert practice.*

Research Problem Formulation

Forensic handwriting analysis is appointed while investigation of almost all categories of crimes (usually in cases involving the investigation of various types of fraud), often due to the denial by accused (suspect) of his previous signatures (records) in procedural documents.

In civil proceedings, forensic handwriting analysis is most often appointed in cases of invalidation of wills, contracts, IOUs, etc. In recent decades, citizens' real estate has been a major source of controversy.

In cases considered by commercial court, forensic handwriting examination is appointed for documents that ensure the economic activity of the legal entity (statutes, memoranda of association, minutes of meetings of participants, agreements and contracts and annexes to them, bills, etc.).

The subject of forensic handwriting analysis is the study of patterns of formation, functioning and changes in the writing and motor skills that is the basis of handwriting; study of regularities of expert research on handwriting; development of methods and techniques for solving issues of forensic handwriting analysis in order to establish the facts that have probative value in criminal proceedings and civil cases.

Current forensic handwriting analysis is constantly improving and optimizing existing methods of identification research, developing quantitative methods of handwriting research based on probabilistic modeling (especially while research on small handwriting objects).

Analysis of Essential Researches and Publications

The development of forensic handwriting analysis is closely connected with the theoretical generalization of the material accumulated over many years. French forensic scientist A. Bertillon as the first who proposed a descriptive direction in forensic handwriting and made an attempt to quantitatively interpret the qualitative characteristics of handwriting [1]. Measurements and quantitative methods were initiated by E. Locard who developed a method of measurement and presentation

1 Мельник Д. В. Проблеми аспекти використання існуючих кількісних методів дослідження почерку. *Криминалистика и судебная экспертиза* : межвед. науч.-метод. сб. 2013. Вып. 58 (2). С. 227—235. URL: http://nbuv.gov.ua/UJRN/krise_2013_58(2)__46 (date accessed: 22.08.2021).

in the form of statistical curves. In 1915 S. M Potapov presented a new method of handwriting research (already tested in practice by experts of the Kyiv Cabinet of Forensic Science, which he headed) which was based on comparing the relationships between strokes along the lines formed by their upper and lower endings in their same combinations.

The first handwriting definition belongs to S. M. Potapov and reflects a fundamentally new view of its essence. He defined handwriting as *"system of movements expressed in written signs".* This definition focused on the study of motor nature of handwriting and was developed in research papers of forensic scientists who studied handwriting based on the achievements of natural science.

Since the early 1950s, the theory and methods of forensic handwriting analysis have been enriched with new developments that have developed previously advanced provisions based on knowledge in other special sciences (linguistics, physiology, psychology) and aimed at studying the laws of writing and handwriting for identification purposes. The stage of the mid-1950s and late 1980s is characterized by the intensive development of experimental developments and theoretical generalizations. The experiment, used simultaneously with the observation and generalization of practice, becomes the main method of scientific research, gradually acquires the characteristics of a complex natural science, and later probabilistic-statistical, model (based on mathematical modeling) experiment. In addition, experimental research is performed not only by individual criminalists, by entire research teams that unite professionals in various fields: criminalists, lawyers, physiologists, psychologists, mathematicians.

Such prominent modern scholars as L. Yu. Arotsker, V. V. Lipovskyi, Z. S. Melenevska, S. A. Tsypeniuk, and others paid attention to the study of handwriting. Criminalists M. Ya. Segai and V. K. Strinzha noted that "*object of reflection and information carrier are graphic drawings as materialized traces-reflection of the written-motor act of the person who wrote, they are the original and direct object of expert research*" [2].

The first ideas of cybernetic (computer) modeling in forensic handwriting analysis belong to P. M. Lanzman who theoretically substantiated and together with mathematicians proved the possibility of using image recognition algorithms to differentiate similar handwriting objects.

Scientific foundations of subject expert fields of knowledge did not stand still: what was sometimes questioned in the 1950s and 1960s already had a solid theoretical and practical basis in the 1990s.

In the 1970s, L. Yu. Arotsker drew attention to the need to assess the scientific foundations of handwriting in the dynamic process of their development.

The rapid development of the basics of forensic handwriting analysis contributed to the strengthening of its scientific foundation to such an extent that results of handwriting researches in the former USSR and in Europe were unequivocally recognized.

In this regard, it is worth mentioning that in the United States, probably due to the insufficient level of development of forensic handwriting, there were doubts as to whether it has a scientific and methodological basis. To clarify this issue, handwriting experts and non-experts were randomly tested — random people who were

2 Сегай М. Я., Стринжа В. К. Судебная экспертиза материальных следов отображений (проблемы методологии) : монография. Киев, 1997. С. 95.

offered to perform a kind of handwriting identification tasks on practical material. The purpose of the study was to determine the professional suitability of handwriting experts or, in other words, to determine whether they have specific expertise. The result of the experiment put an end to this discussion in favor of professionals [3].

Mathematical theories and approaches, automation of research processes, use of modern computer equipment and tools are of great methodological importance in development of forensic handwriting analysis. The statistical nature of many handwriting patterns has led to the widespread use of the theory of probability and mathematical statistics in development of theoretical concepts and methods of expert study of handwriting objects. The basis of many methods used today in research and examination is the probabilistic approach and statistical analysis.

Modern scientists have also paid attention to the development of research methods for concise signatures, in particular, the work of M. E. Bondar is devoted to the algorithm of calculating object informativeness[4].

In 2020, prominent scientists: N. V. Syrotenko, R. Tamoshunaite, V. G. Abrosymova considered in detail current issue of forensic handwriting analysis: research on short signatures and solution of identification and diagnostic issues for such objects [5].

Research papers of D. I. Gaydamakina, O. S. Drobysheva, L. O. Grinenko, O. V. Matsyuk are devoted to research on short manuscripts made by elderly and old age people [6].

Article Purpose

This article purpose is to generalize and theoretically substantiate the forensic research on small texts, identify key aspects of this research based on the analysis of forensic expert practice to optimize forensic research.

Main Content Presentation

Small scope manuscripts are records where the scope of graphic information that reflecting properties of the performer handwriting is insignificant. In such manuscripts can be traced only part of a holistic system of basic patterns of handwriting.

Small scope of handwriting information is due to the following reasons:

a) document assignment of or individual records in;
b) uncommon conditions of execution of records (specific target instructions);
c) unsuitable storage conditions for documents;

3 Kam M., Fielding G., Conn R. Writer identification by professional document examiners. *Journal of Forensic Sciences.* 1997. Vol. 42. Is. 5. Pp. 778—786. DOI: 10.1520/JFS14207J (date accessed: 22.08.2021).

4 Бондарь М. Е. О совершенствовании методики почерковедческой экспертизы. *Современное состояние, проблемы и перспективы развития судебной экспертологии* : мат-лы Междунар. науч.-практ. конф. (АР Крым, 20—21.09.2007). Симферополь, 2007. С. 153.

5 Сиротенко Н. В., Тамошюнайте Р., Абросимова В. Г. Експертне дослідження коротких підписів. *Теорія та практика судової експертизи і криміналістики* : зб. наук. пр. 2020. Вип. 22. С. 293—303. DOI: 10.32353/khrife.2.2020.23 (date accessed: 22.08.2021).

6 Гайдамакіна Д. І., Дробишева О. С., Гріненко Л. О., Мацюк О. В. Дослідження коротких рукописних записів, виконаних особами похилого та старечого віку. *Ibid.* Вип. 21. С. 291—308. DOI: 10.32353/khrife.1.2020.19 (date accessed: 22.08.2021).

d) other factors that complicating detection and evaluation of handwriting signs.

In scientific literature there are definitions of handwritten text of *small scop and concise record*.

Small text in letters contains a limited number of letters for repeated reproduction of the most common («а», «е», «и», «о»); usually contains 4-10 words.

Small digital text contains all or some digits and their combinations up to 8 digits; usually less than 1/3 page of a standard sheet of paper.

Mixed (alphanumeric) small text contains a limited number of letters and numbers; usually less than 1/3 of a page on a standard sheet of paper: up to 2 words and 5 digits.

Concise record is a type of manuscript, which content is recorded using alphanumeric, digital or mixed alphanumeric graphic images, the hallmark of which is a smaller volume of graphic material; contains a limited number of letters and numbers: letter — 1-3 words, digital — 1-7 numeric characters, mixed — no more than 2 words and 5 digits.

Small scope manuscripts can be classified as follows:

- concise texts (inscriptions on envelopes, invoices, other economic and financial and economic documents, etc.);
- concise records (inscriptions on objects, on documents: physical evidence, etc.);
- handwritten texts written in altered handwriting (in unusual conditions, in order to intentionally change handwriting signs) with fragments of unaltered handwriting that have survived;
- handwritten texts made in different alphabets;
- records made in structurally simple handwriting;
- signatures on behalf of fictional persons;
- records preserved in spoiled documents, faded, extinct texts;
- records found while application of methods of questioned document examination (pressed, etched, flooded, burned, etc.).

In small scope manuscripts, a significant part of the informativeness of handwriting properties (individuality, dynamic stability, variability, selective variability) is expressed in abbreviated form.

Therefore, tasks associated with research on small manuscripts and concise manuscripts are the most difficult.

Let us highlight the reasons that cause this:

- limited scope of handwriting material and a small number of features reflected in;
- difficulty in determining stability and variability of individual handwriting signs, because most letters and numbers are not repeated;
- existence of both coincidences and differences, the ratio of that is difficult to explain unambiguously;
- insufficient expressiveness of signs of uncommon conditions of manuscript performing;
- difficulties while research on general signs of handwriting and written language;
- ability to perform the studied small scope records using technical means.

The fact that small manuscripts belong to uninformative handwriting objects does not mean that these concepts are interdependent and unambiguous. Small texts and concise notes can be of varying degrees of information that should be

taken into account while solving the issue of forensic handwriting analysis. In some cases, a small scope of information can be associated with the purpose of records on document, in others with execution conditions, target performer instructions, etc., thereby determining informativeness of such objects, in our opinion, depends primarily on identifying signs of handwriting significance, ability to assess the stability and conditions of occurrence (reflection) of identification and diagnostic signs and only then from the number of letter and digital images.

Methodology specifics of the research on small objects are analysis of all, without exception, identifying handwriting signs. Thus forensic expert pays attention to detailing of signs in elements of written signs and their combination, applies measurement of elements of letters and numbers, establishes exact sequence of movements and their quantity. It is important to measure the angles that form the strokes of written signs and the axes of these signs.

An important step is analysis of the system of structural relations: characteristics of written signs along the length of vertical and horizontal movements and the position of written signs relative to each other, mostly in the same letter combinations, in adjacent letters and numbers. In this case, every detail about stability and characteristics of movements should be identified to establish their systemic nature, patterns of handwriting. For this purpose it is possible to use microscopic examination of strokes.

For comparison of selected characteristics, properties in letters and numbers, you can use different comparative and measuring grids, which allow you to investigate both absolute and relative values of the length of movements vertically and horizontally. A protractor and a milrule grid can be used to measure angular ratios.

Evaluation of detected handwriting signs while research on small manuscripts is of paramount importance. This is due to difficulty of establishing such criteria as stability and variability, determining the role of signs. Therefore, first of all comparative material, samples of handwriting of alleged performer are studied. It is even possible to compile alphabetical designs of handwriting samples to obtain information about the interdependence of handwriting signs in different written characters.

Evaluation of results of a comparative research on identification signs includes the study of their stability, materiality, interdependence, as well as determining sufficiency of these signs for conclusion. Evaluating, study indicators in the same letters and numbers, in the same type of elements of different written characters, in comparative samples of the alleged performer.

Evaluation of diagnostic signs of small objects is carried out traditionally: by their availability, nature, severity and location.

Recalling research specifics of small objects, it is possible to focus on studying concise and simple records in general. Solving the issue is divided into three research levels.

First level is a preliminary research consisting of five stages: acquaintance with received materials; review and preliminary study of the studied record; review and preliminary study of comparative material; preliminary comparison and evaluation of results; planning future research.

Specifics of the previous stage: increased requirements for quality and quantity of comparative material. The smaller the test object, the larger comparative material and the more comparable handwriting samples

should be. Samples should be compared with the studied manuscript in terms of time and conditions of execution, content, purpose, writing materials, etc.

It is obligatory to provide free handwriting samples in the form of entries in documents similar to the subjects and in the amount of not less than 15 sheets.

For obtaining experimental samples, a text should be compiled that would contain a combination of words (numbers, letters and numbers, etc.) found in the research record. Experimental samples should be taken on at least 15 sheets [7].

Second level involves solving the issue on the basis of a qualitative approach and use of quantitative methods to solve individual subtasks. It contains five steps: setting conditions for recording; determining record informativeness; research on general record signs; research on separate record signs; evaluation of results of the second level research.

Third level covers solving the issue using software to analyze all information about handwriting object (both structural, geometric and that contained in the distribution of dye and stroke width), use of variance analysis, graphical averaging of written characters. It contains the following stages:

- identifying objective;
- selection of comparative handwriting samples;
- preparation of comparative graphic material, measurement of parameters;
- calculation of crucial functions and adjustment of measurements, interpretation of results.

Specifics of previous stage of third research level:

- while choosing mathematical methods take into account object specifics for application of multidisciplinary methods of research of structural, geometric and pressure characteristics in one-word concise records;
- use methods of questioned document examination to exclude technical forgery of a concise record (for example, using copying techniques).

Specifics of separate stage of third level:

- separate research begins with disputed record; research of separate signs is carried out in the form of text tables-developments or graphic sketches;
- apply significant detailing of the object to obtain additional information and highlight necessary set of signs;
- study dynamic characteristics, in particular the degree and nature of pressure; study distribution of the pressure degree along the device trajectory which they write on;
- while studying such concise records as dates, resolutions (*Agreed, TBD, Approved,* etc.), stable combinations of written characters are found in the whole record.

Specifics of comparative stage of third level:

- use tools for detecting handwriting information (microscope, photographic and computer technology);
- carefully study movements that are not fixed, availability and length (initial and final elements of letters,

7 Науково-методичні рекомендації з питань підготовки та призначення судових експертиз та експертних досліджень : затв. наказом Мін'юсту України від 08.10.1998 р. № 53/5 (зі змін. та допов). URL: https://zakon.rada.gov.ua/laws/show/z0705-98#Text (date accessed: 22.08.2021).

intervals between individual letters, numerical marks, etc.);
- evaluate stability of the identified individual signs not only in repetitive movements, in letters of the same name, but in the same type of elements of different letters and numbers;
- stability of signs is checked by comparative material;
- all identified stable specifics of movements (even if there are several in one written sign) are added to the set of signs;
- identified individual signs are checked for interdependence; the most dependent signs are found in cyclic and similar movements;
- to the complex are added those signs that are rare in handwriting of different people, which stability is not possible to study.

Research methods of concise records. Traditional and unconventional methods are used to study concise handwriting objects.

Under traditional methods understand the methods based on qualitative and descriptive techniques. Traditional methods should be used while researching concise records and signatures at the first level of issue solving (preliminary research). Traditional methods solve diagnostic and identification tasks carried out at second level (separate and comparative research).

Unconventional methods include: instrumental, quantitative methods, automated systems and software packages [8]. Unconventional methods are used to solve the issues of forensic examination at the third level and are used to study one-word concise entries, concise and simple signatures and signatures made in unusual conditions.

The main instrumental methods for the research on pressure characteristics in concise records, concise and simple signatures are microscopic and sensitometric methods [9], as well as structural and geometric analysis, determination of dye distribution and stroke width, analysis of variance, graphical averaging of written characters.

As noted by E. Svoboda and A. Zakharkin, the automated system for the research on concise handwriting objects allows to analyze information about handwriting object according to selected algorithms for pattern recognition: as structural and as geometric one and that contained in distribution of dye and width of a stroke [10].

Final evaluation of research results in the case of unconventional methods is complex, as it synthesizes traditional and unconventional components.

In the Sumy Branch of National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute»"(hereinafter referred to as Sumy Branch) conducted a forensic handwriting examination on civil case files, which object was a brief handwritten record. While research, forensic expert established discrepancies between handwriting signs and Б., handwriting samples, applying structural relations,

8 Меленевська З. С., Свобода Є. Ю., Шаботенко А. І. Судово-почеркознавча експертиза : навч.-метод. посіб. ; за заг. ред. І. П. Красюка. Київ, 2007. С. 232.

9 Серов В. В. Потреба у використанні нетрадиційних методів під час дослідження малообʼємних почеркових обʼєктів, виконаних незвичною до письма (лівою) рукою. *Криміналістичний вісник* : наук.-практ. зб. 2014. № 1 (21). С. 101.

10 Свобода Є. Ю., Захаркіна А. Ю. Судово-почеркознавча експертиза: сучасний стан і актуальні питання. *Криміналістика і судова експертиза* : міжвідом. наук.-метод. зб. 2016. Вип. 61. С. 252. URL: http://nbuv.gov.ua/UJRN/krise_2016_61_31 (date accessed: 22.08.2021).

interdependent signs in eponymous and different written characters and carefully examining handwriting samples of intended performer using handwriting sample development.

Here is an example of establishing the executor of a concise handwritten text while small scope handwriting examination in the Sumy Branch with the use of angular measurements.

The forensic expert determined that in the studied concise handwritten text the inclination of the handwriting is unstable, from left-slanted to right-slanted: the inclination of the letters themselves is from 110° to 60°; elements in italics 85° and 70°; elements in left-handed letters 90° and 110°. In the samples of *П*. handwriting there is a smaller angle of inclination of the letters themselves from 100° to 65°, and of the elements in the letters 75° and 90°, respectively. In addition to the established discrepancy of angular values, forensic expert found a symptom complex of diagnostic signs, existence, nature, severity which location indicated impact on the performer of a concise handwritten text of internal confounding factors that could be unusual caused by alcohol, drugs or other intoxication, a state of natural emotional arousal, excitement. Assessing traditional and unconventional research methods forensic expert came to a categorical positive conclusion regarding implementation of concise manuscript *П*. text.

Thus, we can agree with the opinion of V. V. Zdor and Yu. Yu. Lylova that the content and sequence of the expert's work at the evaluation stage is due to specific forensic situations [11].

Domestic scientists are actively studying research methods of handwriting objects used in Europe. Among such modern methods are method of analysis of changes (used to identify the signature performer), method of simple lines, method of geometric projection of P. Brosson. The graphical comparative method is popular in Europe.

We consider O. Yu. Savchuk's opinion to be very correct, that states: "*Modern development of technologies allows to improve handwriting research, giving opportunity to use modern software, publicly available or specially created. Such programs allow for more extensive use of measurement and statistical research methods, thus reducing the level of subjectivity in the evaluation of research results*" [12].

On the basis of the Kyiv Scientific Research Institute of Forensic Expertise of the Ministry of Justice of Ukraine in 2010 a consultative program *VESNA* was developed to solve integration tasks in a single process for signatures made in unusual conditions (in this case it means resolving signature authenticity and establishing specific conditions for its application). It is quite possible to develop similar expert systems not only for research of signatures, but for solving issues of handwritten texts and records (in particular, concise) [13].

11 Здор В. М., Лилова Ю. Ю. Особливості аналізу стійкості ознак при дослідженні малообʼємних рукописів. *Вісник Одеського науково-дослідного інституту судових експертиз* : наук.-практ. вид. 2019. Вип. 5. С. 261—263. URL: http://ondise.minjust.gov.ua/wp-content/uploads/2019/06/VisnykONDISE052019.pdf (date accessed: 22.08.2021).

12 Савчук О. Ю. Про розвиток почеркознавчої науки в історичному та перспективному контексті. *Ibid*. С. 320—324. URL: http://ondise.minjust.gov.ua/wp-content/uploads/2019/06/VisnykONDISE052019.pdf (date accessed: 22.08.2021).

13 Бондар М. Є., Ковальчук З. О., Сукманова Т. О. Судово-почеркознавча експертиза: становлення, можливості, перспективи розвитку. Судова експертиза : наук.-практ. журн. 2014. № 1. С. 19—29.

Polish forensic community uses the programs *Raygraf* (analyzes the length of strokes, angles of inclination of individual elements, the degree of coherence of handwriting and pressure) and *Kinegraf* (determines the direction of movement, the degree of concavity of the lines and their length). In Poland, such programs as *Liniograf*, *Centrograf*, *Profiloscan*, *Graflog* are also created [14].

Conclusions

Nowadays, forensic handwriting analysis is a highly developed subject area of the theory of forensic science and criminalistics. Characteristic is the further active development of theoretical foundations of forensic handwriting analysis, experimental developments, generalizations of practice, improvement of existing methods and creation of new, more effective methods of expert handwriting research. In recent years, software products based on: automatic measurement of segments between the points separated in comparable signatures (USA) have been successfully introduced into the practice of handwriting experts all over the world; recording execution time of individual fragments and comparing obtained data with samples (Switzerland); measuring structural and geometric characteristics of objects, research on density distribution of the dye in order to assess pressure and pace (Russia); principle of block handwriting (Belarus, automatic Manuscript system) [15].

Development of current forensic handwriting analysis is characterized by intensive penetration in research on handwriting of mathematical methods, that at this stage can be considered as science mathematization. Penetration of mathematical methods into forensic handwriting is due, on the one hand, to development of its theory within criminalistics (influenced by mathematization) and on the other hand, connection of forensic handwriting analysis with biology.

In our opinion, the main promising area of research in the field of forensic handwriting analysis is to improve identification methods of small handwriting objects by including methods based on modern advances in science and technology and allow forensic expert to obtain additional information while research on these objects.

Software use along with traditional methods of studying concise records gives the expert an objective basis for drawing conclusions, because the correct selection of samples and their correct measurement excludes formation of categorically negative and probably negative conclusions.

The value of research software is that it is possible to analyze such recording signs that are difficult for forensic expert to see and evaluate in a traditional research.

Effective approach to solution of identification tasks of forensic examination of small scope texts is proposed in this article, basic aspects of forensic research of short manuscripts and records are allocated, given examples of application of traditional and unconventional research methods will be useful for use in forensic expert practice in order to optimize the

14 Савчук О. Ю. Огляд найпопулярніших комп'ютерних програм, що застосовуються у сучасному судовому почеркознавстві // Судова експертиза: проблеми сьогодення та перспективи розвитку : кол. моногр. Львів, 2020. С. 322—327.

15 Кочергов Е. Г., Михайленко С. Г. Система автоматического исследования почерка. *Экспертная практика и новые методы исследования в почерковедении* : информац. сб. 1995. № 2. URL: http://www.sudexpertiza.by/4835/160/6846 (date accessed: 22.08.2021).

forensic research, taking into account specific expert situation.

Деякі аспекти експертного дослідження текстів малого обсягу

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Останнім часом на допомогу експертам-почеркознавцям у всьому світі прийшли програмні продукти, дія яких ґрунтується на: автоматичному вимірюванні відрізків між точками, позначеними в порівнюваних підписах; реєструванні часу виконання окремих фрагментів і порівнянні здобутих даних зі зразками; вимірюванні структурно-геометричних характеристик об'єктів, дослідженні розподілу густини барвника з метою оцінити натискання й темп; принципі блокування почерку.

Метою статті є узагальнити й теоретично обґрунтувати експертне дослідження текстів малого обсягу, виокремити ключові аспекти проведення цього дослідження на основі аналізу експертної практики для оптимізації експертного дослідження.

Наведено визначення рукописного тексту малого обсягу та стислого запису, їхні види і характеристики розмежування. Зазначено складові, що зумовлюють брак інформації про почерк у досліджуваних рукописах. Розглянуто класифікацію малообсягових рукописів і проаналізовано причини, що ускладнюють дослідження цих об'єктів. Акцентовано увагу на тому, що належність малообсягових рукописів до малоінформативних почеркових об'єктів не означає взаємозалежності й однозначності цих понять. Наведено чинники, що визначають міру інформативності об'єктів. Виокремлено особливості методики дослідження текстів малого обсягу й викладено основні аспекти експертного дослідження стислих текстів і рукописних записів.

Запропоновано ефективний підхід до вирішення ідентифікаційних завдань експертизи малообсягових об'єктів. Наведено приклади застосування як традиційних, так і нетрадиційних методів для оптимізації експертного дослідження стислих почеркових об'єктів з урахуванням конкретної експертної ситуації.

Ключові слова: *тексти малого обсягу; інформативність; особливості методики дослідження; традиційні та нетрадиційні методи; експертна практика.*

Некоторые аспекты экспертного исследования текстов малого объёма

Сергей Науменко, Светлана Брюхань, Ольга Катарага

В последнее время на помощь экспертам-почерковедам во всём мире пришли программные продукты, действие которых основано на: автоматическом измерении отрезков между точками, выделенными в сравниваемых подписях; регистрации времени выполнения отдельных фрагментов и сравнении полученных данных с образцами; измерении структурно-геометрических характеристик объектов, исследовании распределения плотности красителя с целью оценить нажим и темп; принципе блочности почерка.

Целью статьи является обобщение и теоретическое обоснование экспертного исследования текстов малого объёма, выделение ключевых аспектов проведения этого исследования на основе анализа экспертной практики для оптимизации экспертного исследования.

Приведены определения рукописного текста малого объёма и краткой записи, их виды и характеристики разграничения. Отмечены составляющие, обусловливающие малый объём информации о почерке в исследуемых рукописях. Рассмотрена классификация малообъёмных рукописей и проанализированы причины,

усложняющие исследование этих объектов. Акцентировано внимание на том, что отнесение малообъёмных рукописей к малоинформативным почерковым объектам не означает взаимозависимости и однозначности этих понятий. Приведены факторы, определяющие степень информативности объектов. Выделены особенности методики исследования текстов малого объёма и изложены основные аспекты экспертного исследования кратких текстов и рукописных записей.

Предложен действенный подход к решению идентификационных задач экспертизы малообъёмных объектов. Приведены примеры применения как традиционных, так и нетрадиционных методов для оптимизации экспертного исследования кратких почерковых объектов с учётом конкретной экспертной ситуации.

Ключевые слова: *тексты малого объёма; информативность; особенности методики исследования; традиционные и нетрадиционные методы; экспертная практика.*

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Declaration of Competing Interest

The authors declare that they have no conflict of interest.

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