

CRITICAL ANALYSIS OF DOCUMENTATION SOURCES – A CHALLENGE FOR TEACHERS?

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Abstract

The consultation of the sources with a view to writing a scientific paper and carrying out research represents an essential condition and stage, securing a successful activity, which meets the rigour and requirements of such an endeavour.

Information mining or documentation itself is subject to requirements and rigour which must, on the one hand, ensure an adequate selection of the sources and, on the other hand, an appropriate use of them. Lately, the volume, but also the diversity of these sources, have made this approach difficult. The difficulty is also increased by the need to carry out critical analyzes of the consulted works, which identify the successful and less successful aspects, resolved ones, or of the previous experiences.

For teachers conducting research and writing scientific papers, this can be a serious challenge. The present study aims to investigate the necessity and possibility of a critical analysis of the bibliographic sources by the teachers who undertake investigative approaches.

The sample of subjects on which the investigation was carried out consisted of 120 school-based teachers, of different specializations, in pre-university education, who sat in for the examination for the first teaching degree at the University of Craiova in the session of February 2019.

The research method used was the questionnaire-based survey, the research tool being an opinion questionnaire.

The results of the investigation highlighted the importance of the critical analysis of the documentation sources by the teachers who carry out theoretical or experimental research.

Key words: *Critical analysis, Documentation sources, Webography, Bibliography, Plagiarism.*

1. Introduction

Documentation is an essential stage of any research activity, regardless of its specificity or the method of substantiation, be it in a paper or book.

The complexity of the documentation activity is given by the diversity and the multitude of sources, which requires careful selection, according to criteria that must also concern their relevance, importance, topicality.

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In addition to sorting out the sources, based on the above mentioned criteria, reading the guidelines that allow for analysis, comments, interpretation, leading to the second stage of information selection, is involved.

In this context, the need for critical analysis is related to rigorous, serious, fact-based documentation, which, in turn, must be the starting point of carrying out scientific research that meets the quality criteria in force.

Both the possibility of selecting the sources, as well as their critical analysis, obviously depend on the experience of the researcher, his/her level of training, and his/her personality. In the case of teachers, we complement these conditions with others related to their professional training and to the experience in carrying out scientific investigations.

The present study aims to examine the opinion of an important number of teachers, who sat in for the examination for the first teaching degree, regarding the importance of the critical analysis of the documentation sources, as well as the modalities for its accomplishment, in order to draw up a methodological-scientific paper.

The competence of critical analysis can be successfully practised in this context, and at this essential stage of the writing of the paper. It should take into account the possibility of teachers to capture the successful and less successful aspects of the sources consulted, the topics or sub-topics sufficiently explained or those that require more details, revisiting, further development.

2. Critical analysis – a need for the teacher - researcher

Any type of research must be based on a thorough documentation process conducted by the teacher - researcher. S/he should critically analyze the information from the sources, that is, establish/verify the exact degree of truthfulness or falsity.

This situation is a good example to highlight the importance of critical thinking, not only in the initial training of pre-service teachers, but also in continuous training. Moreover, this competence is considered by many to be an attribute of the modern man, of the professional, regardless of field, specialization, which is why it must be practised with all the students (Halpern, 1999; Thomas, 2011; Grosser, Nel, 2013; Davies, 2015; Willingham, 2019).

Individuals having developed critical thinking skills are people who research, ask questions, discard information on the face value, are active, think analytically and synthesize, evaluate information and explain truthfully, are open-minded and aware of cognitive processes (Karakoç, 2016, p. 82).

Information involves interaction, real or virtual, of communicative nature, between a sender and a receiver. The information is presented in the form of a text, image or sound (audio materials), through different channels / media and it is transmitted according to its own schema (Repanovici, <http://webbut.unitbv.ro/Carti%20on-line/Repanovici/TDRC.pdf>).

The author classifies sources as follows: primary sources, secondary sources and tertiary sources. Primary sources are non-periodical and periodical. The non-periodical ones are traditional (brochures, books, treatises, monographs, text books,

course books, glossaries, official publications, repertoires, calendars, dictionaries, maps, atlases, albums, homage volumes) and special ones (patents, research reports, PhD theses, scientific papers, projects, journals, articles, editorial series, newspapers, yearbooks, technical and commercial guides, technical and commercial catalogues). Secondary sources run as follows: annotations, bibliography, catalogues, compendia, encyclopedias, guidebooks, indexes, lexicons, reviews, reports, reference journal, summaries, documentation synthesis. Tertiary sources include: lists of bibliographies, collections of translations, catalogues of bibliographic research.

Bibliographic search involves consulting/reading specialized papers that address the topic, either in an exhaustive or tangential manner. Documentation is required for (Bocoş, 2003, pp. 22-28):

- clarification and definition of the basic, key concepts;
- clarification of the main theoretical aspects of the topic;
- awareness of the topic-related research already carried out in order to avoid repetition;
- compilation of the thematic bibliography, by categories of sources;
- establishing, anticipating the possibilities of finding solutions for unresolved issues;
- drawing up a preliminary plan to improve research.

The information obtained through documentation is ordered, structured and will then be critically analyzed, commented on, interpreted in an adequate way.

We mention some requirements that must be met in bibliographic documentation:

- the authors selected will belong to the category of specialists in the field or issue addressed;
- the scientific works should be representative, illustrative for the topic addressed;
- the sources must be updated and original.

A modern source of documentation/investigation is represented by the Internet, through the so-called search engines. However, the requirements are higher than in the case of bibliographic sources, given the large number of sources of documentation and materials that can be accessed, and on account of their quality. Thus, the teacher - researcher should make a more rigorous selection of this information, choosing those that:

- are scientifically accurate;
- have a solid theoretical foundation;
- belong to well-known authors in the field;
- are updated;
- are tested or validated in/by educational practice.

Without a shadow of doubt, the researcher has the obligation to use and cite the sources correctly.

Another source of documentation is represented by the study of official curriculum-related documents: curricula, syllabi, textbooks, teaching aids.

Irrespective of the source type, an active, participatory, conscious, reflective-inquisitive reading is required, which involves discriminating and adopting ideas, statements, theories, examples, generalizations, etc.

Another step in the critical analysis of documents is their evaluation from the point of view of relevance and importance for the chosen/investigated topic. The teacher - researcher should carry out a global, synthetic reading of the bibliography and, possibly, make a hierarchy according to the impression about all the materials and documents that are available. Thus, this step proves to be useful for detecting what materials are missing or what would be the ones that would be needed to widely cover the the topic addressed.

Adapting the advantages of performing a critical analysis, presented by Thomas (2001, p. 28), for the situation of the teacher in need to select the documentation sources, we can list:

- Considering and evaluating the different points of view;
- Developing a logical argument, with adequate evidence;
- Identification of flaws, strengths and weaknesses of an argument, point of view, theory;
- Identification of possible prejudices of the approach to a problem or situation;
- Analysis of the quality of the sources;
- Making syntheses of various, varied sources;
- Application of the evaluation criteria;
- Evaluating one's own decisions.

The problem of plagiarism in documentation should not be neglected. The teacher must choose the sources of documentation and cite them properly, irrespective of the fact that they are bibliographic or webographic. Plagiarism represents the appropriation of ideas, methods, procedures, technologies, results or texts of another person, regardless of the way in which they were obtained, presenting them as their own creation. Nowadays, plagiarism is accentuated by the internet and the ease of taking over online doctoral, research, scientific papers, ideas, images. Web-based plagiarism is called *online plagiarism* (Mogonea, Mogonea, Popescu, 2013a; 2013b).

3. Research methodology

The aim of our investigation was to know the opinion of the teachers in relation to the role and importance of the critical analysis of the documentation sources, in order to carry out scientific research.

The objectives we had in mind were the following:

1. To know the opinion of the teachers on the importance of using reading guidelines in relation to the sources consulted.
2. Investigating the possibilities of teachers to critically analyze the sources consulted, depending on their specificity.
3. Identification of the difficulties encountered by the teachers in carrying out critical analyzes on the sources consulted.

The research directions of action were aimed at validating two **hypotheses**:

1. *Through documentation can be ensured by performing a critical analysis of the sources.*

2. *The critical analysis of the sources consulted is a condition and an effect of the originality of the research and of drawing up the methodological-scientific paper.*

Overview of research method and tools

The research method used was the questionnaire-based survey, the instrument applied being an opinion questionnaire, which comprised 12 items of different categories (with closed, semi-closed, open-ended; in the category of closed items, we used simple choice items, as well as multiple choice, which involved the choice out of several variants, in accordance with the opinion of the subjects).

In point of content, the items of the questionnaire covered the aspects specified in the research objectives, namely, those regarding the importance of the critical analysis of the sources consulted, the possibility of achieving it, the difficulties that the teachers encounter when undertaking this task.

The sample of subjects was made up of 120 teachers, of different specializations, who sat in for the examination for the first teaching degree in the session of February 2019.

4. Results and discussions

We present the results obtained by administering the opinion questionnaire to the teachers. Their answers can be structured according to how they can contribute to the validation of the two research hypotheses.

Thus, for the first hypothesis, which contains the premise that *Rigorous documentation can be ensured by performing a critical analysis of the sources*, we validated the answers to the items 1-7.

In this respect, we note the teachers' options regarding the categories of sources that they access when documenting for a scientific paper or research, as shown in Figure 1.

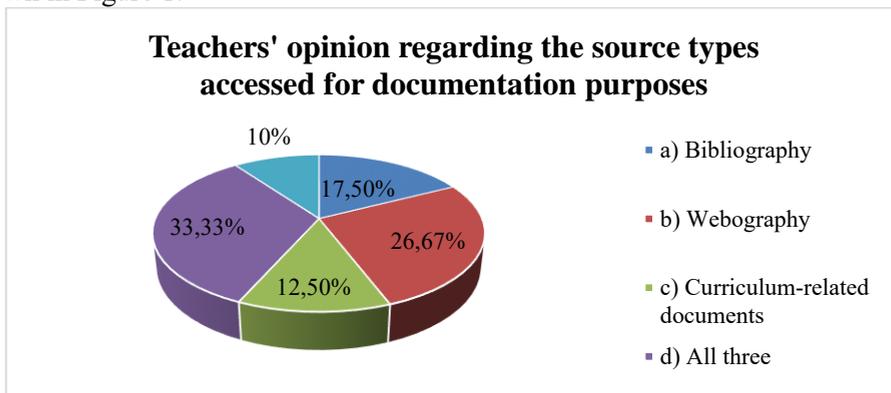


Figure no. 1. Teachers' opinion regarding the source types accessed for documentation purposes

Most respondents believe that critical analysis is necessary to a great extent, but that it is possible (so it is achievable) to an appropriate extent, as it can be seen from Figures 2 and 3.

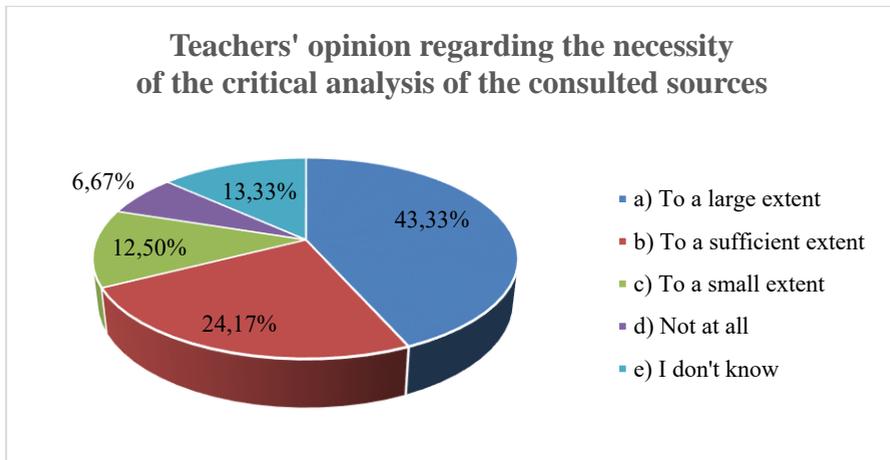


Figure no. 2. Teachers' opinion regarding the necessity of the critical analysis of the consulted sources

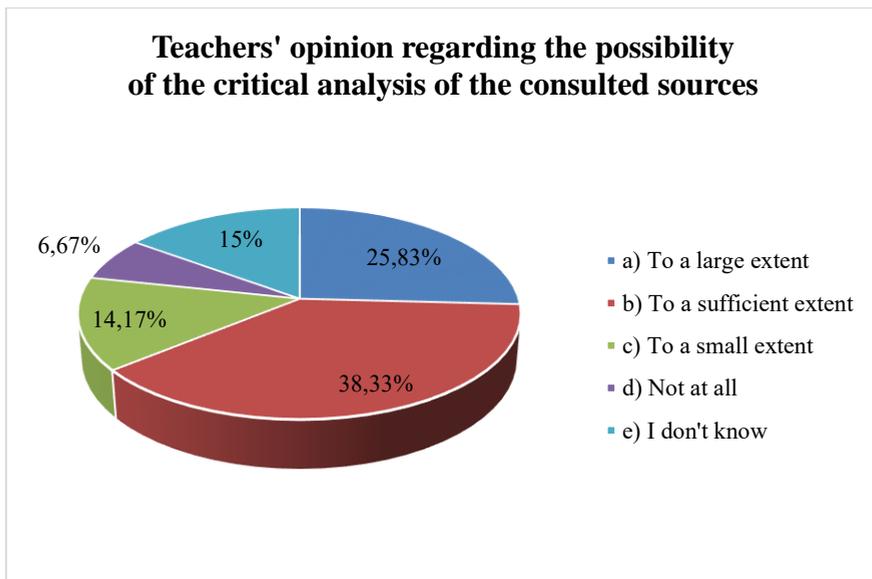


Figure no. 3. Teachers' opinion regarding the possibility of the critical analysis of the consulted sources

While acknowledging the importance of the critical analysis of the information accessed, teachers confess that they are not able to do this on all occasions (see Figure 4).

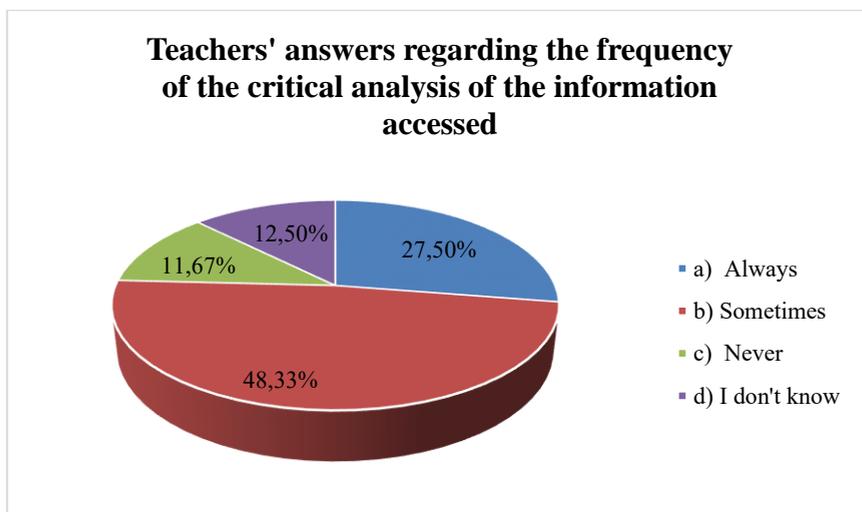


Figure no. 4. Teachers' answers regarding the frequency of the critical analysis of the information accessed

Items 5 and 6 of the questionnaire contained open-ended questions, asking the respondents to specify some advantages of the critical analysis as applied to the sources consulted, and to signpost difficulties or hindrances.

We present some of the most significant advantages mentioned by the teachers:

- A better understanding of the texts;
- The possibility of identifying lesser known or less researched aspects, or of others that are not envisaged by the author in question;
- Practising critical thinking, analysis, interpretation skills;
- Practising persuasion skills, exemplification, substantiation.

As difficulties or hindrances, they mentioned:

- Insufficient experience or lack of it regarding such an approach;
- The diversity of documentation sources, their variety and complexity;
- Difficulty in approaching well-established topics, but also less explored ones;
- The nature, often too theoretical of the sources consulted, containing very few examples or practical aspects;
- The too weak link, sometimes, between theory and educational reality.

Based on the idea that the way of reading and selecting, of analyzing the documentation sources is different, depending on their category and the possibilities of access, the following item polled the teachers' opinion about the need to select information. We present, in Figure 5, the answers provided.

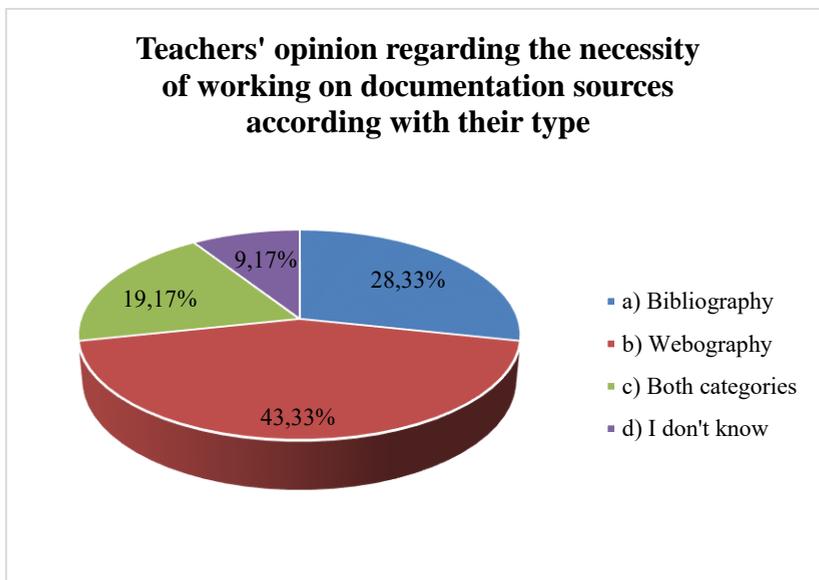


Figure no. 5. Teachers' opinion regarding the necessity of working on documentation sources according with their type

In order to validate the truth value of hypothesis 2, *The critical analysis of the sources consulted is a condition and an effect of the originality of the research and of drawing up the methodological-scientific paper*, we used the subjects' answers to items 8-12.

Since the possibility of interpreting in a proper way a study, a paper or a book depends on a number of factors and conditions, we were interested in finding out the opinion of the subjects in this regard. Figure 6 shows the subjects' answers. We mention that the item was a multiple choice one.

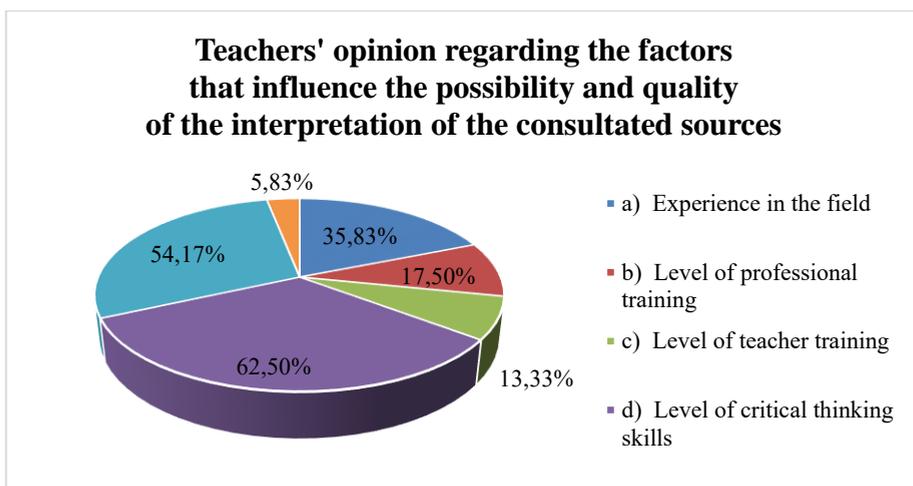


Figure no. 6. Teachers' opinion regarding the factors that influence the possibility and quality of the interpretation of the consulted sources

As far as the the opinion of the teachers on the role of critical analysis in carrying out the methodological-scientific work is concerned, the opinions are divided: some of the teachers think that this is useful to a large extent, whereas others appreciate it to a small extent (Figure 7). The explanation of the option for the second variant lies in the difficulty that the teachers experience in accomplishing such a task, more particularly because they are aware that they do not have the opportunity to research too often.

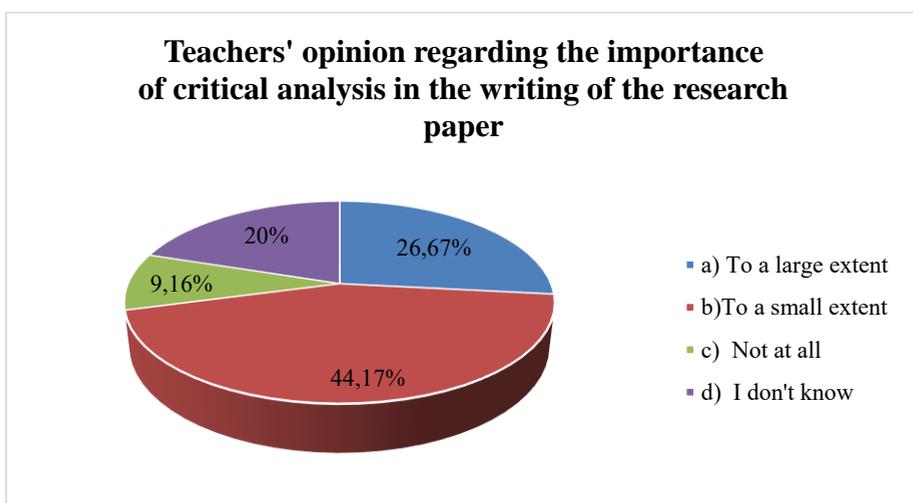


Figure no. 7. Teachers' opinion regarding the importance of critical analysis in the writing of the research paper

Updated, relevant, original information is thought to be important from a methodological-scientific point of view. Figure 8 presents teachers' options for this item (multiple choice).

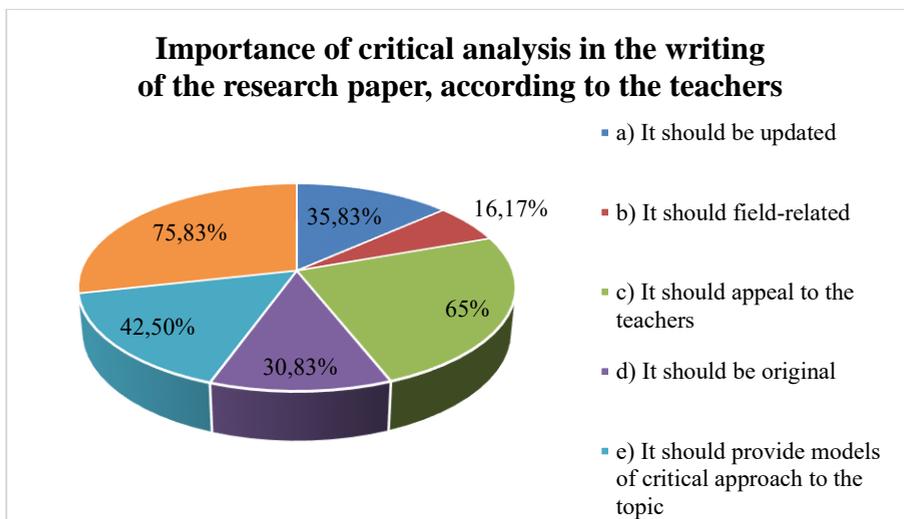


Figure no. 8. Importance of critical analysis in the writing of the research paper, according to the teachers

The most important effect of interpreting the documentation sources is, in the opinion of the teachers, the one related to the identification of some dysfunctions, which can be solved by subsequent remedial work.

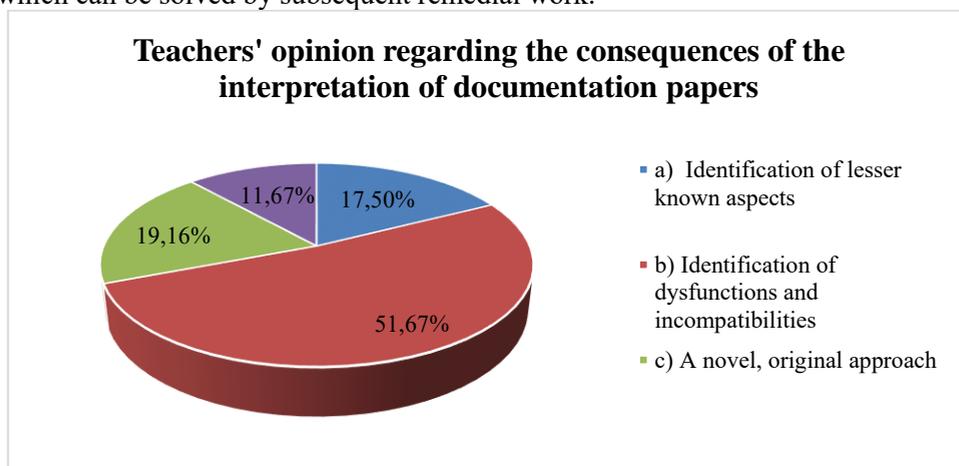


Figure no. 9. Teachers' opinion regarding the consequences of the interpretation of documentation papers

Teachers recognize that they often resort to the help of specific websites for documentation purposes (see Figure 10).

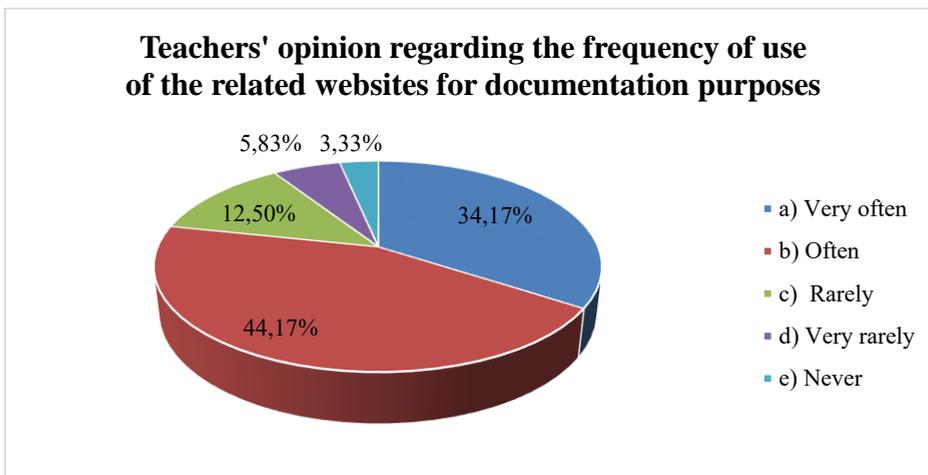


Figure no. 10. Teachers' opinion regarding the frequency of use of the related websites for documentation purposes

The results obtained by administering the opinion questionnaire validate, as it can be seen, the research hypotheses.

5. Conclusions

The present study aimed to investigate the problem of interpreting the sources consulted by the teachers when carrying out scientific research. The importance of this approach is obvious, especially to ensure the originality of the research work or activities performed. The question arises if such an approach is possible, if the teachers have an adequate level of development of critical analysis and interpreting skills.

It is true that they are not involved in such situations too often, i.e. they do not face the need to carry out work that require a wide and complex documentation, which partly justifies the difficulty they find in this case.

Nevertheless, we consider that critical, reflective thinking should represent an important dimensions of the modern man, of the contemporary teacher in order to ensure the success of the activity carried out.

Thus, we emphasize the importance of practising these competences in any contexts that offer this possibility, including the daily practice, the classroom activity. The ability to issue value judgments, to make decisions, to justify an opinion, to identify ways in which we can substantiate a theory, to make generalizations, based on concrete educational situations are, implicitly, linked to that of critical analysis, selection, sorting.

We consider that the process of writing a paper that combines a theoretical, scientific dimension with an applied, experimental, methodological one, underpinning extensive, rigorous documentation, is an approach allowing for the practice of the above mentioned skills and contributing to downsizing the difficulties that the teachers mentioned.

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