
THE PHOTOGRAPHIC DOCUMENT: A SOCIAL AND COMMUNICATION OBJECT FOR THE GENERATION OF KNOWLEDGE

O DOCUMENTO FOTOGRÁFICO: UM OBJETO SOCIAL E DE COMUNICAÇÃO PARA A
GERAÇÃO DE CONHECIMENTO

EL DOCUMENTO FOTOGRÁFICO: UN OBJETO SOCIAL Y DE COMUNICACIÓN PARA LA
GENERACIÓN DE CONOCIMIENTO

Joana Sousa Rodrigues¹

¹*Universidade do Porto*

Correspondência

¹Joana Sousa Rodrigues 

Universidade do Porto

Porto, PT

E-mail: joanasousarodrigues.14@gmail.com



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ABSTRACT: The photographic document constitutes a huge challenge for what is called the Information Age and is aligned with the technological advance, namely the imposition of digital, through image capture devices. The treatment of photographic information, although at first glance, shows an immense range of opportunities and benefits, still suffers from a limited and underdeveloped study. If, on the one hand, textual documents are present, in an overwhelming majority, in the information centers and, for that reason, their analysis and treatment are carried out daily, on the other, the image has been positioning, even though slowly, in the information society as a relentless medium in the generation of knowledge. The image is dominant in the communication, but the photograph still has a diverse treatment, as far as the description, interpretation and systematic use. The difficulty of searching in collections of images is well known and evident. Starting from a case study with image-producing researchers, it is intended to understand how photography can be a benefit, understanding how it should be treated so that it becomes a resource of value, with significant effects on information retrieval. This study is based, above all, on the descriptive tasks necessary to give the context to the photographic document, since this is a fundamental activity for them to be interpretable and recoverable. The process of interacting with the researchers constitutes the fundamental methodological process of the work, since it allows to make the models of description of the image dynamic and flexible, allowing that it is not limited to certain domains.

KEYWORDS: Information processing. Information Science. Information society. Photographic document

RESUMO: O documento fotográfico constitui um enorme desafio para aquela que é chamada de Era de Informação e que vem alinhada com o avanço tecnológico, nomeadamente a imposição do digital, através de dispositivos de captura de imagem. O tratamento de informação fotográfica, embora, à primeira vista, espelhe um leque imenso de oportunidades e benefícios, ainda padece de um estudo limitado e pouco desenvolvido. Se por um lado, os documentos de carácter textual estão presentes, em esmagadora maioria, nos centros de informação e, por esse motivo, a sua análise e tratamento são realizadas quotidianamente, por outro, a imagem tem vindo a posicionar-se, ainda que lentamente, na sociedade de informação como um meio implacável na geração de conhecimento. A imagem é dominante na comunicação, mas a fotografia tem ainda um tratamento diverso, no que toca à descrição, interpretação e uso sistemático. A dificuldade de pesquisa em coleções de imagens é conhecida e evidente. Partindo de um estudo de caso com investigadores produtores de imagem, pretende-se perceber de que forma a fotografia pode constituir um benefício, entendendo como esta deve ser tratada de modo a que se torne um recurso de valor, com efeitos significativos na recuperação da informação. Este estudo assenta, sobretudo, nas tarefas de descrição necessárias para dar o contexto ao documento fotográfico, pois esta é uma atividade fundamental para que estes sejam interpretáveis e recuperáveis. O processo de interação com os investigadores constitui o processo metodológico fundamental do trabalho, pois permite tornar os modelos de descrição da imagem dinâmicos e flexíveis, permitindo que esta não seja limitada a determinados domínios.

PALAVRAS-CHAVE: Ciência da Informação. Documento fotográfico. Sociedade da Informação. Tratamento de informação

RESUMEN: El documento fotográfico constituye un enorme desafío para aquella que se llama la Era de Información y que viene alineada con el avance tecnológico, en particular la imposición de lo digital, a través de dispositivos de captura de imagen. El tratamiento de información fotográfica, aunque, a primera vista, refleja un abanico enorme de oportunidades y beneficios, aún padece un estudio limitado y poco desarrollado. Si por un lado, los documentos de carácter textual están presentes, en aplastante mayoría, en los centros de información y, por ese motivo, su análisis y tratamiento se realiza cotidianamente, por otro, la imagen se ha ido posicionando, aunque, lentamente, en la sociedad de la información como un medio implacable en la generación de conocimiento. La imagen es dominante en la comunicación, pero la fotografía todavía tiene un tratamiento diverso, en lo que se refiere a la descripción, interpretación y uso sistemático. La dificultad de búsqueda en colecciones de imágenes es conocida y evidente. A partir de un estudio de caso con investigadores productores de imagen, se pretende percibir de qué forma la fotografía puede constituir un beneficio, entendiendo cómo ésta debe ser tratada de modo que se convierta en un recurso de valor, con efectos significativos en la recuperación de la información. Este estudio se basa, sobre todo, en las tareas de descripción necesarias para dar el contexto al documento fotográfico, pues ésta es una actividad fundamental para que éstos sean interpretables y recuperables. El proceso de interacción con los investigadores constituye el proceso metodológico fundamental del trabajo, pues permite hacer que los modelos de descripción de la imagen dinámicos y flexibles, permitiendo que ésta no se limite a determinados ámbitos.

PALABRAS CLAVE: Ciencia de la Información. Documento fotográfico. Sociedad de la Información. Tratamiento de la información

1 INTRODUCTION

Convinced of the importance of the image for the Information Science, this article aims to sensitize the others to the need to counteract the banalization that the photographic document has been suffering, not only because of the ease it is currently under reach of anyone through mobile devices, scanning and printing, but also by the reductive way as still seen in the context of IC.

The information society tends to be the driving force of change and advancement, both for the needs it wants to be satiated and for the desire to see new trends. And it's the trends we're talking about. The photographic document contains innumerable possibilities and trends. If in its genesis we already find an incalculable value in the preservation of memory and the promotion of nostalgia (for the content it has), photography today tends to point to new goals and propose new challenges, either through its efficient conservation, or through the techniques and methodologies that should be used for its convenient description in the most diverse information systems.

The article points to the awareness of the photographic document as a social and communication object, showing evidence of this fact and reminiscent of its role in the generation of knowledge for the information society and its stakeholders. In addition, the article places the photographic document in the documentary process, an important fact, since the documentary typology that is mostly embraced by this process is confined to textual documents, an idea that must be demystified and circumvented, in order to standardize all documentary typologies. After all we talk about information processing, just information processing. Is it worth it to label, scale or rank the information through its support or language?

It is the interpretation we make and the approaches we use to the treatment of information that define a result, so we forget the importance measures and categorization pyramids and focus on Information Science as it should be seen.

In this work the evaluation component is based on a case study with researchers producing photography in their research projects. This will be the guiding thread to understand the informational behavior of those who deal with photography, but above all to detect the techniques that should be privileged when we speak of imagery.

2 LITERATURE REVIEW

The scientific character attributed to the photographic document is unquestionable, since it allows us to confirm the real and achieve truthfulness about something, besides its role in freedom of expression and respect for visual language is immense. According to Roland Barthes (2012), the photographic document guarantees diversity in communication and, therefore, its position in an information society, endowed with such expression mechanisms can not be ignored. Also Serén (2013) sees the photographic document as an integral social object of an information and communication society, since it has the ability to register, through the transcription notes of the transverse and global society.

If doubts existed about the constitution of the photographic document as a social object, let us see the basic elements that it possesses and which are fundamental characteristics to acquire this status. First, the photographic document has an intention, directly linked to will and purpose; secondly it has an expression, which in everything is related to the way of externalizing an idea, of transmitting a notion or opinion; third party has an inscription that is critical to maintaining the two previous elements.

IMAGEM: EMISSOR - - - RECEPTOR



Figure 1. Photographic Language
Source: Boccato and Fujita (2006)

The photographic document, as a means of communication that is, has assumed a decisive role for the reflections in the field of scientific knowledge. Its social peculiarity, still very much associated with the media, has revolutionized the so-called Visual Arts, as it houses in itself structures of interoperability between human, social and digital systems.

Photography is no longer seen merely as a way of promoting memory and nostalgia, it involves a set of dimensions, through the new means of information and communication, which gives it the ability to disseminate information. Photography is no longer just the product of a moment taken, it is rather the result of a set of elements that distinguish it and allow its interpretation, it is aggregated information and disposed on a medium, photography "is universal, but always particularized" (SIMIONATO; NETO; SANTOS, 2015, p.59). As far as news production is concerned, the photographic document is already beginning to be seen as an important communication strategy, because if a journalist uses a photograph in a news story, it is not because it will occupy an empty space, but because it plays a role of diffusion as effective as text.

The documentary process, in the paragraph above, which will result in the representation and retrieval of photographic information, is based on three phases, starting with the content analysis of the document, followed by the synthesis of the content analyzed and ending with the representation of the content of the document. In fact, we are scouring the issues that are based on the photographic document, however these three phases of document analysis are the same, they are documents of a textual or imagery character.

That the processing of information must be consistent and standardized, regardless of its documentary typologies, there is no doubt, however, that the interpretation that is carried out on a textual document and on a document of an imaginative character is inevitably different. The truth is that a text is capable of providing its reader with a set of details which, from the outset, will be easier to grasp. A text allows for a faster reading, as it allows the reader to intuitively perceive the subjects and details, without having to make more complex readings and out of what is presented. On the other hand, the images, particularly the photographic documents, give readers a more careful interpretation, since they need to carefully consider all the details in order to clearly understand the message of that document. A text, a priori, will be less dubious and direct, photography may induce deviations and little depth of the subject matter and it is for this reason that, on several occasions, photography complements a text. In fact, a text says, but the photograph proves what was reported.

The approach in the above paragraph allows to prove the relevance of the insertion of the photographic document in the documentary process, since only the information treatment of these documents, namely the description, can eliminate the interpretative failures of the photographic document, since a complement of cohesive, unilateral and faithful to the message can give the details more than enough for the reader to perceive the image, the interpreter and apprehend his lesson.

The images below (images 2 and 3) outline an example of what has been described previously. The image 3 only allows a visual reading, because it is a photograph and the image 4 only allows a textual reading, because it is news. Both images report the same event, but the image 4 allows the reader to acquire more details than the image 3, due to the characteristics intrinsic to this documentary typology. This is a case in which the addition of a photograph to a text is essential as evidence of a fact, however, both could arise distinctly if the image 3 had a description associated with it and that allowed the reader to make a concrete and immediate reading without having to resort to textual material.



Figure 2. Photograph about the new «Baleia morta dá à costa no Furadouro»
Source: Jornal de Notícias - Portugal (2017)

Uma baleia foi encontrada morta, ao final da tarde de ontem, a Norte da praia do Furadouro.

Segundo o presidente da Câmara Municipal de Ovar, Salvador Malheiro, o mamífero foi alvo da atenção de várias autoridades que estão a tentar apurar os motivos da morte do animal, através de vários exames.

Mais tarde, e por decisão dessas mesmas autoridades, foi decidido enterrar a baleia numa zona de mato da proximidade.

Salvador Malheiro justificou que a sua deslocação para outro local poderia trazer problemas de saúde pública.

O aparecimento do animal levou dezenas de pessoas até àquela zona de costa, surpreendidas com o inusitado surgimento.

Há cerca de dois anos uma outra baleia deu a costa, já sem vida, também a norte do Furadouro, Ovar.

Figure 3. New «Baleia morta dá à costa no Furadouro»
Source: Jornal de Notícias - Portugal (2017)

According to Boccato and Fujita (2006), "documentary analysis is an instrumental process" and it is for this reason that Information Science, through its "postmodern multidisciplinary" character, should stimulate the definition of guidelines that lead to competent access of systems and information units. It is in this sequence of ideas that the

information professional is going to "represent the content of the photographic image to make it accessible - socialization of knowledge - to the user". In this way, the information professional has the intention to seek and obtain the information that satisfies the research needs, as well as to create reference services that are suitable for the accomplishment of the tasks that it proposes.

In another point of view it is possible to discuss how the use of images has a significant memory effect in the human brain that establishes, more quickly, connections between the objects and their contexts, fostering a faster and efficient understanding.

Silva (2014) discusses how photography can trigger the phenomenon of "seeing-knowing", stating that it has characteristics that allow it to perform unique brain actions of memory and recognition. To prove this thesis are the studies of Czerwinski and Horvitz (2002) and Elswailer, Ruthven and Jones (2005) that the human being forgets many details of the tasks he performs a few months after completing them. However, with the first study, it is stated that when confronted with images or videos they tend to remember the forgotten one more readily and, in the second study, that with the aid of annotations they easily remember what was no longer remembered.

3 MATERIAL AND METHODS

The selected approaches and methodologies for given research are some of the fundamental pillars for its success and equilibrium, since they are the path that must be taken and carried out in order to reach scientific knowledge capable of reaching a result. The working methods are the mechanisms, procedures and tools essential in the research work. In addition, these allow the theoretical foundations underlying the methods to be discovered, thereby influencing the researcher's decision-making.

For this investigation the methodology used will be the qualitative method of investigation, through the case study, namely the exploratory research. The exploratory research is intended to improve the familiarization of the researcher with the case under study, so this method will serve to make a preliminary investigation on the topics to be addressed, so that it is possible to reflect on them and improve their understanding. The treatment of photographic information and the positioning of the documentary typology associated to it in the information society is not yet widely studied. Therefore, with the exploratory research, it is intended that ideas and hypotheses are generated that complement this theme and that help the work to in collecting the bibliography to be collected, in the ideas to be adopted or in the assumptions to be generated.

The case study is an integral part of the qualitative method of investigation, which has the objective of analyzing specifically the theme in question and, in this way, creating deep

clarification about it. For this study, a set of five researchers with links to the University of Porto was selected from different fields, namely cardiovascular health, animal welfare, smart cities, research journalism and biodiversity. These researchers were selected because they were photographers in their research projects. In addition, when confronted with the possibility of participating in this study, these five were the ones that gave more importance to image description issues and considered that this era a gap evident in the process they develop in the course of their projects.

Figure 4 shows the methodological approach, from the contact with the researchers to the task of evaluating results. The analysis of this approach will be resumed later.

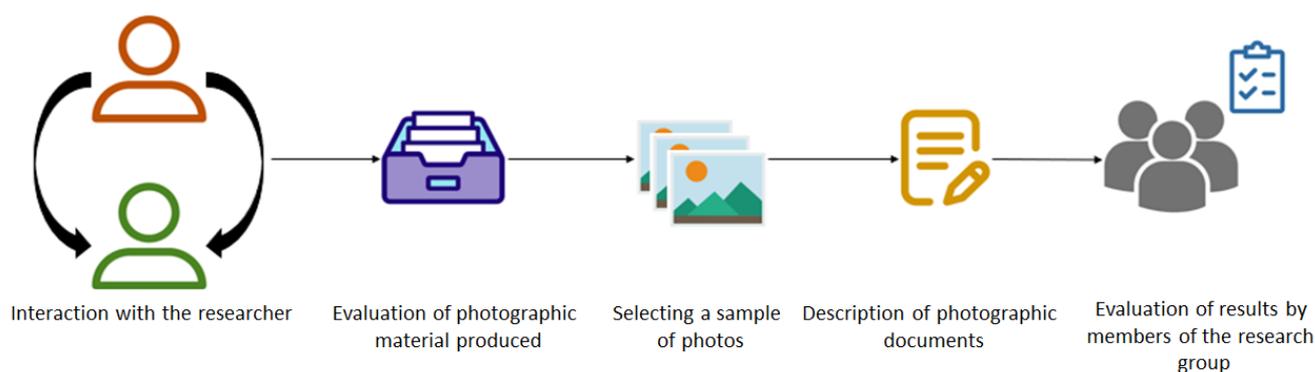


Figure 4) Methodological Approach

Source: Own authorship

3 RESULTS AND DISCUSSION

The documentary analysis, inserted in the documentary process, requires specifications, namely the use of a controlled language for the description of the photographic documents. The use of controlled language is inherent to terminological control, the use of specialized lexicon, the close and faithful representation of the document content, the use of semantic relations and the registration of standardized forms of access point. Only following these guidelines at the time of document description is that the retrieval will be efficient and match the expectations of the user of the information system at the time of the search. The use of controlled language promotes research accuracy, as well as more efficient navigation, provides users with a result equivalent to that expected, enables the cancellation of variation of results, enabling the recoverable content to be much more than a mere description of the document and provides a more dynamic and executive environment.

For the study in question five researchers were questioned about the use of photography in their projects. Everyone considered photography to be essential in that it allowed them to accurately collect details that no other type of textual annotation would achieve. However, also in unanimity among researchers, is the fact that this documentary typology lacks a description component that adds value.

In the preliminary meeting held with the researchers, several times were selected in which the description of their photographs could be useful, however, the following four occurrences were those that appeared in most of the researchers' speeches.

- 1) Allows not to forget important details regarding the photograph and when it was taken. Several researchers have pointed out that their projects are long lasting and sometimes the fact that their photographs are not described at the time of their collection triggers that certain details are later forgotten.
- 2) Allows photos to be more easily retrieved within the systems they use to store and organize their photos. They consider that through, for example, indexing terms or metadata, the photographs would be more easily retrieved.
- 3) It allows other researchers within the project and people outside the project, who are interested in the materials produced, to interpret the photographs properly, without deviations or doubts.
- 4) Allows the use of photos to be reused. Some of the researchers, at the end of their projects, publish their data and other materials in repositories, blogs, the project website or even in disciplinary sites, and therefore expect their shares to encourage visualization and reuse. With the complement of the description the researchers expect to see their photographs reused by others, either because the description shows caution and precision during the collection process of these documents, or because, in this way, it is guaranteed the conformity between what is seen and what is read.

After the preliminary meeting it was necessary to select, together with the researchers, the set of photographs that would constitute the sample to be studied. Each researcher selected 4 photographs, which is a final sample of 20 photographs.

Subsequent to this task left to the description of the photographs, task that was the total charge of the researchers. To facilitate this work, researchers were navigated through several sources of information that use indexing terms and metadata to describe their resources. Among these sources of information were academic catalogs, news center resource management platforms, thematic and institutional repositories and some ontologies available online.

As expected, given the diversity of research domains, the vocabulary used was diverse. However, they presented points of agreement. Table 1 shows, in a generalized way, the description work developed by the researchers.

Table 1) Classification of the vocabulary used for the photographic description

	Photography 1	Photography 2	Photography 3	Photography 4
Researcher 1	1 temporal; 1 geospatial; 4 semantic; 4 administratives; 1 technical; 2 descriptive.	1 temporal; 1 geospatial; 2 semantic; 4 administratives; 1 technical; 3 descriptive.	1 temporal; 5 espaciais; 3 semantic; 4 administratives; 1 technical; 2 descriptive; 1 generic.	1 temporal; 1 geospatial; 2 semantic; 4 administratives; 1 technical; 2 descriptive.
Researcher 2	2 temporal; 2 geospatial; 2 administratives; 2 technical; 5 descriptive; 2 generics.	1 temporal; 1 geospatial; 2 administratives; 4 descriptive; 2 context.	2 temporal; 1 geospatial; 2 administratives; 2 identity; 5 descriptive;	2 temporal; 2 geospatial; 2 administratives; 7 descriptive; 1 semantic.
Researcher 3	1 temporal; 1 geospatial; 4 administratives; 5 semantic 2 generics; 1 identidade.	1 temporal; 2 geospatial; 4 administratives; 1 technical; 4 descriptive; 1 generics; 1 context.	1 temporal; 3 geospatial; 1 administrative; 1 technical; 5 context; 2 generics; 2 semantic.	2 temporal; 1 geospatial; 2 administratives; 1 technical; 2 generics; 7 context; 1 identity.
Researcher 4	1 temporal; 1 espaciais; 3 administratives; 1 technical; 3 semantic; 3 descriptive; 1 generic; 1 context.	1 temporal; 1 espaciais; 2 administratives; 1 technical; 5 descriptive; 1 generic; 2 context.	1 temporal; 2 espaciais; 3 administratives; 2 technical; 1 semantic; 2 generics; 1 context; 1 identity.	1 temporal; 2 espaciais; 4 administratives; 2 descriptive; 1 generic; 4 context.
Researcher 5	1 temporal; 1 espaciais; 4 administratives; 2 technical; 3 semantic; 1 identity 1 context.	1 temporal; 1 espaciais; 2 administratives; 1 technical; 2 semantic; 3 descriptive; 2 generics.	2 temporal; 1 espaciais; 3 administratives; 3 semantic; 3 descriptive; 3 generic; 2 context.	1 temporal; 2 espaciais; 4 administratives; 4 descriptive; 2 context; 1 semantic.

- Researcher 1: cardiovascular health
- Researcher 2: animal welfare
- Researcher 3: smart cities
- Researcher 4: research journalism
- Researcher 5: biodiversity

To classify the categories of terms used by researchers in describing their photographic documents, the proposal made by Jian Qin and Kai Li in his article of 2013, “How Portable Are the Metadata Standards for Scientific Data? A Proposal for a Metadata Infrastructure”, as can be seen in Figure 5.

Category	Scope of the category
Administrative	<ul style="list-style-type: none"> • Meta-metadata, i.e., information about metadata record, standard used, responsible party, rights for the metadata record, etc. • Information about data archive/repository.
Context	<ul style="list-style-type: none"> • Information about study/project design, model, and population under study. • Data collection methods, instruments, and constraints. • Analysis methods used.
Descriptive	<ul style="list-style-type: none"> • General attributes about what the resource is and when it is published, released, or made available. • Related resources of the resource that is described.
Geospatial	<ul style="list-style-type: none"> • Geographic names. • Geospatial coordinates. • Aerial maps and/or data.
Generic	<ul style="list-style-type: none"> • General-purpose elements, including comment, annotation, note, etc. • Wrapper or nesting elements for structuring and syntactic purposes.
Identity	<ul style="list-style-type: none"> • The name of an entity that is used to identify the entity understood by human users. • A unique ID either in the form of some code or of a string following an identification system.
Semantic	<ul style="list-style-type: none"> • Subject terms describing the content of data. • Subject or classification categories. • Taxonomic classes.
Temporal	<ul style="list-style-type: none"> • Measurements of time. • Temporal coverage of the content of data. • Temporal criteria for data segmentation, processing.
Technical	<ul style="list-style-type: none"> • Parameters, models, measurements used in the dataset. • Software-, system-, and format-related attributes.

Figure 5) Description of the category scope
 Source: Qin and Li (2013)

After realizing the description it was well known that the researchers give special interest to terms of description of temporal, geospatial and administrative character, since they are present in the twenty descriptions realized. In addition, it is important to note that the remaining categories have appeared several times, which shows a broad and representative description.

The descriptions, as a rule, have always exceeded the mark of ten descriptors, which is by no means a reductive number when it comes to description. Researchers are clearly

concerned about giving context to their photographs. These could be limited to a low number of terms of description, only those that showed the geospatial and temporal coverage and the administrative dimension involved. However, they were concerned with assigning terms that would allow us to understand, for example, the semantic and contextual bases of photographs, as well as the more technical information.

This task, in addition to showing the importance of the treatment of photographic information, namely the description as a contribution to the appreciation and understanding of photographic documents, reports how the human component is indispensable in the process of information processing. It is undeniable that automated tools can be a major contributor to information systems that want to ensure efficient information management. However, researchers who rely exclusively on automation may not be able to see the actions performed validated, there will be no error checking and correction, and consequently the interpretation and retrieval of the data may be compromised. With the possibility of incorporating the human component in the process, the reliability of the results is guaranteed.

In addition, the importance of the flexibility of information processing tasks is mentioned. There should be no standard to describe whatever the resource. There should be guidelines to follow and allow guidance in the most diverse tasks, so that there are no dubious paths and rules improperly established.

Handling information is essential to ensure the efficient and standard management of the various documents processed, whether of an image or textual nature. The information goes through several paths and goes through several phases until it is properly managed. The information lifecycle is extremely complex, but highly intuitive. To deny this cycle is to deny the importance of the documentary process in the natural approach to information management in the various systems. There is no such thing as a fixed and watertight sequence for the information cycle to be processed, but rather a set of needs that must be fulfilled and which, above all, must be correlated, since only then can the genesis of information be properly described, correctly organized, the recovery encouraged and the communication favored.

4 CONCLUSIONS

Never has the image imposed itself in such a way as we have now seen. The emergence of technological alternatives that facilitate the capture of the image has potentiated an overwhelming leap in the production of photographic documents that, today, are much more than a memory of a moment, are the proof of an event, are a mechanism that allows to pass a message to the another, with the corroboration of a reality.

The information society tends to strengthen relationships, which triggers their transformation and new mutable interactions between people and information. Analyzing the information society critically we find that it has a propensity to be based on five distinct bases, namely geospatial, cultural, political, economic and technological. It is on this assumption that the photographic document positions itself in this society as a highly social and communication object that, with all the characteristics and potentialities attached to it, is an excellent driver of information and generator of knowledge.

Doubts existed as to how the photographic document acquires a prominent place in the information society were extinguished by the almost overwhelmed need to capture a moment through a mobile device and immediately share it with others, or even by the will to prove an event with the search greedy for images that allow a better contextualization, interpretation and sense of belonging to the moment portrayed.

The Science of Information, as a social science that is, plays a very important role, both in the discussion of issues related to the photographic document and in the proposal of solutions that allow an information processing that is useful for this documentary typology. CI allows new approaches to the study of image to be understood and, more than that, it is able to offer decent and uniform solutions so that the processes that involve the information management are balanced and seen as equal, whether we speak of a document of textual character, whether we speak of a document of an imaginary character, since, although they have distinct languages, they are both capable of being logical, of transmitting a message and of fomenting interpretation.

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