Process Analysis of the Position of Hard and Soft Sciences in the Conservation and Restoration of Cultural Heritage Based On International Documents

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ABSTRACT

In this research, the results related to the study of the relationship between soft and hard sciences in the conservation and restoration of cultural and historical monuments based on international documents are presented. Becher classified science into hard and soft sciences based on Biglan's background. Attention to soft and hard sciences in conservation decisions has been a topic that has been considered among restoration theorists as well as in restoration charters. However, in practice, less attention has been paid to this issue and its position and role are not yet clearly known. This article seeks to answer the question of how the evolution of cultural heritage conservation approaches has evolved based on the tendency of international documents to hard and soft sciences? Therefore, in this article, the ratio of hard and soft sciences in conservation and restoration based on international documents was examined. For this purpose, the concepts related to soft and hard sciences in international documents were examined in the order of date from 1931 to 2020, and the topics related to soft and hard sciences were analyzed in matrix tables. The results of this study show that in the 1930s to 1960s, more attention was paid to hard sciences. If this trend is not seen in the continuation and in the last three decades, i.e. from 1990 to 2020, a growing trend of attention to soft sciences can be seen in international documents.

Keywords: *conservation of cultural heritage – international documents- hard sciences – soft sciences*

INTRODUCTION

Researchers have always considered a different basis for the division of sciences. James Conant (1950) suggested that different branches of science differ in their "degree of empiricism." Norman Storer (1967) distinguishes between the so-called hard natural sciences and the soft social sciences [1]. Some also believe that disciplines can be divided into hierarchies ranging from "hard" natural sciences to "soft" social sciences [2-4]. On the other hand, some researchers, such as Conant, have used the "degree of empiricism " for the sciences and believe that the natural sciences have a higher degree of empirical knowledge than the humanities and social sciences[5]. Some have used the degree of "hardness / softness" to describe the disciplinary differences between the natural sciences and the social sciences and humanities: the natural sciences are "hard sciences", while the social sciences and humanities are softer. In summary, although the social sciences and humanities and natural sciences can be defined as a science that is widely understood, they differ from each other

in terms of the main research methodology and research centers [5-7]. Hard sciences and soft sciences are spoken terms used to compare scientific disciplines based on methodological consistency, accuracy, and objectivity. Natural sciences (e.g. biology, chemistry, and physics) are naturally "hard", while social sciences (e.g. economics, psychology, sociology) are often described as "soft" sciences [8]. In fact, Becher (1989) classified disciplinary societies into hard and soft sciences [9]. There has always been a struggle among experts and scientists in the soft and hard sciences, especially among chemists and art historians, over the restoration of historical artifacts, an example of this subject can be seen in the mid-twentieth century on the cleansing of ancient paintings in the National Gallery in London [10-12].

On the other hand, cultural heritage is the result of a process created by people and expressing their way of life. It also demonstrates practical skills, work history and knowledge, and these particular perspectives are an opportunity to rebuild the relationship between people and

culture [13]. In fact, cultural heritage conservation is an applied field that requires all sciences, especially the humanities and social sciences [14]. Attention to soft and hard sciences in conservation decisions has been a topic that has been considered among restoration theorists as well as in restoration charters. However, in practice, less attention has been paid to this issue and its position and role are not yet clearly known. In fact, an attempt is made to examine the relationship between hard and soft sciences in conservation and restoration based on international documents as a common basis among experts. Therefore, in this article, an attempt has been made to examine the articles related to international documents in chronological order, and the issues related to soft and hard sciences have been analyzed both in part and in general. Whereas the terms "soft sciences" and "hard sciences" are less explicitly mentioned in international documents; therefore, it has been tried to classify the examples that are related to these issues in the form of related concepts and depending on their relationship with different sciences in one of the soft or hard branches, or both with different degrees. For this purpose, an attempt has been made to use a matrix table to not only show whether a concept is related to soft or hard sciences; but also Show how hard or soft a concept is. In this report, an attempt has been made to observe the historical order of documents other than the relevant organization. This article seeks to answer the question of how the approaches to the conservation of cultural heritage have evolved based on the tendency of international documents to hard and soft sciences? On the other hand, in which years has attention to hard sciences intensified and in which years has attention to soft sciences intensified?

MATERIAL AND METHODS

In this paper, the adopted method is a mixed method, i.e. the qualitative method has been used to collect data and classify and codify them. Since this article seeks to analyze, summarize, classify and infer specific features of the text and in some cases reveals the hidden meanings in it, it is necessary to use the content analysis method. Qualitative content analysis, by analyzing components, terms, and the connections between these component s, seeks to infer and reveal hidden patterns in interviews, observations, and written documents. Content analysis method is used to systematically examine information and reveal hidden semantic patterns in them or even the systematic and meaningful application of some corrections and words [15]. Finally, a

quantitative method has been used to present the data, since it is necessary to weigh each of the codes. In order to define the components that are related to soft and hard sciences and have been mentioned in various international documents, different documents were examined and components were extracted from each document alone. By examining international documents, some common component s can be seen, and the most important common components related to soft and hard sciences, which is mentioned below. It should be noted that apart from the text of the studied documents, no distinction can be made between this components, or in other words, they cannot be placed in one of the soft or hard sub-categories. Only in the text of the documents and according to the prevailing conditions can the degree of hardness or softness of each Component be recognized. These components include "Attention to Physical Evidence, Interventional Approach, attention to corpus of historical objects, Training of Experts and Technicians, Application of Techniques, Specialized Perspective, Analysis of Works, Public Education, Pre-studies (Cognitive studies before intervention), awareness and recognition, community cooperation in conservation, the establishment of public organizations and organizations, attention to indigenous peoples in the field of conservation, participation and public access, and encouragement to protect historical monuments," .

In this study, international documents include charters, conventions, treaties and declarations related to protection and restoration that have been published by various organizations and institutions such as ICOM, ICOMOS and UNESCO. All international documents related to conservation and restoration from 1930 to 2020 AD, the article or clauses of which were related to soft and hard sciences have been examined in detail by examining their various articles and clauses and in a table as A matrix is provided and component s are extracted from each substance or clause, some of which were mentioned above. Finally, 7-point Likert scale was used to convert qualitative data into quantitative data [16-18]. according to the researchers and the criteria and definitions of hard and soft sciences (Table 2 and some other tables extracted from various articles) each of these cases are in a degree of soft and hard that these different degrees, They are divided into seven levels and are defined from A to G (see table 1).

This was done for all documents from 1930 to 2020. In order to convert the extracted qualitative

data (at seven levels) into quantitative data, the number of codes in each decade is extracted from the matrix tables related to each document and presented in Table 4. For a better comparison, the number of these frequencies, in terms of percentage, is also given in Table 5. This operation was performed separately for every ten years and in comparison with other years.

Table1. *Definition of the codes used in this article.*

Code	Definition
A	quite soft
B	relatively soft
C	mild soft
D	neutral
E	hard mild
F	relatively hard
G	quite hard

THEORY

Hard and soft sciences in the field of conservation and restoration have definitions and examples that in this part of the article in the form of a separate section, i.e. the theoretical background of research and the theoretical framework of research are discussed.

Theoretical Background of Research

Simultaneously with the development of the concept of cultural heritage, sciences related to this field have also expanded. From the beginning, the concept of cultural heritage was not known in this context, and the field of application of sciences was not as wide as it is today, but the two have gone through a gradual process. In the first half of the twentieth century, a new scientific conservation emerged that emphasized the use of hard sciences in conservation and restoration [11]. Biglan identified four main branches for the classification of sciences, which include pure hard sciences and pure soft sciences, as well as hard-working and soft-applied sciences [19]. This type of division became the basis until a few years later, Becher made his famous division of science; that is, to express the division of science into hard and soft. In fact, Becher (1989) classified science into hard and soft sciences based on Biglan's background. Accordingly, hard sciences include natural sciences and mathematics and soft sciences include social sciences and humanities [9]. According to Biglan's classification scheme, strings in which there is paradigm consensus are considered "hard" and strings without paradigm consensus are considered "soft" [19,20].

Some researchers, such as Conant, have used the "degree of empiricism "for the sciences, arguing

that the natural sciences have a higher degree of empirical value than the humanities and social sciences [5]. Some have used the degree of "hardness / softness" to describe the disciplinary differences between the natural sciences and the social sciences and humanities: the natural sciences are "hard sciences", while the social sciences and humanities are softer. In summary, although the social sciences and humanities and natural sciences can be defined as a science that is widely understood, they differ from each other in terms of the main research methodology and research centers [5-7] Kolb 1981[21] suggested that Hard sciences have more consensus on content and methods than soft sciences [19,22]. The content of hard science is fixed, and teaching in these disciplines places more emphasis on helping students obtain and use accepted scientific facts, principles, and concepts. In contrast, soft sciences are more important in developing critical thinking skills and individual interpretations of the world of human experience. Hence, the content of softer topics is free and teaching and learning activities are constructive and interpretive [23]. Dang and Webb (2014) also analyzed academic speech in two groups of hard disciplinary (physical sciences and life and medical sciences) and two groups of soft disciplinary (arts and humanities and social sciences) [4, 23]. In another article, chemical sciences, biology and civil engineering are considered as hard sciences and sociology, human ecology and communication development are considered as soft sciences [24].

Theoretical Framework of Research

Scientific disciplines can be divided into hierarchies ranging from "hard" natural sciences to "soft" social sciences [2-4]. In the soft science approach, the author divides the findings into insights that are presented as reliable definitions. These insights are often difficult to implement and measure. In contrast, in the hard science approach, the focus is on models and numbers. Discover and understand the subject based on data. The rules are presented, as well as the method of measuring whether a method leads to the desired results [25] Hard sciences agree more on content and methods than soft sciences. Hard science content is also consistent, with more emphasis on accepted scientific facts, principles, and concepts. In contrast, soft sciences are more important in developing critical thinking skills and individual interpretation of the world of human experience [4]. The subject of study of hard sciences such as physics or chemistry is

inanimate nature (material ontology), but the subject of study is human social sciences which have the power of thought and show that it is immaterial [26]. The duality of hard and soft sciences refers to the differences that exist between the two paradigms of knowledge. In hard sciences such as basic sciences and experimental sciences, scientists identify the world based on objective and tangible methods, while in soft sciences such as humanities, social sciences and arts, more emphasis is placed on abstract and subjective methods. Becomes. Historically, there are two competing views on the position of hard and soft sciences in the twentieth century [27]. It is surprising that what counts as science and what is considered scientific is still largely based on a traditional, positivist paradigm that heavily leans towards the natural sciences and either denies or downplays the scientific status of the social sciences and the humanities [28]. Of course, some critics believe that objectivity, as it exists in the hard sciences, is never seen in the social sciences [26]. It may seem difficult to compare research in the social sciences to research in the physical sciences. Theoretical structures and experimental paradigms are quite different. Each research domain has complications and elaborations that do not arise in the other [29].

Methodologically, positivist realism is associated with "hard" science, which formulates hypotheses and tests them with reproducible and measurable experiments. The principle of reproducibility implies that the knowledge obtained in this way is separate from the individual. The consequence of this view is that, because the laws of science are universal, people must change, not technology [30]. Constructivism is associated with 'soft' science, that is, science that looks at social phenomena that cannot be reduced to component parts and are not repeatable independent of their complex settings. Case studies that paint a rich, thick, picture of phenomena are a mainstay of the 'soft' sciences [30]. This does not mean that only qualitative methods are used in soft sciences. On the other hand Wells & Stiefel (2019), believe

that paradigms such as constructivism, positivism, relativism and colonialism describe contemporary social science theory [31].During the last two decades, the research approaches of social sciences have become very numerous, in such a way that the researcher can now have several choices [32]. Today, increasing emphasis on the use of qualitative methods is seen in social sciences [33]. Glass was among the first authors to recommend the use of quantitative procedures in integrative research reviews in the social sciences. His comprehensive quantitative review of research on the effectiveness of psychotherapy attracted the attention of many psychologists [29].

In terms of research topics, the natural sciences study objects/ natural objects, while the social sciences and humanities study human behaviors and activities [34]. The main subject of natural sciences is the study of the behavior of all phenomena in the world; With the exception of human beings and the main subject of social sciences, it is limited to the study of human behavior among all phenomena [35].

Constructivism is associated with "soft" science, which deals with social phenomena that cannot be reduced to their component parts or repeated outside their complex configurations. Case studies that paint a rich picture of phenomena are the mainstay of soft science. Constructivism provides the epistemological basis for "participatory" approaches [35]. According to Diamond, hard science is usually obtained by experiment and accurate information. But many phenomena in the world, such as psychology and human behavior; and all phenomena of human societies, including cultural anthropology, economics, history, and politics, are often not solved by these methods [36].

Soft and hard sciences have another division, and that is the division of sciences into natural, human, social, etc., each of which has criteria and characteristics that are not fully mentioned in this article, so as a table, These features, which are referred to in this article to explain the article of the documents, are listed below.

Table2. *Characteristics and criteria of soft and hard sciences based on the opinions of various researchers.*

Row	Soft (A)	Hard (B)	Reference
1	lower degree of empirical	higher degree of empirical	[5]
2	less consensus on content and methods	More consensus on content and methods	[4,19,22]
3	More important in developing critical thinking skills and individual interpretations of the human world	Fixed content and help to obtain and use scientific facts	[4,23]
4	Relatively unclear theoretical structure	Fully developed theory	[37]

5	They have well-defined problems without a consensus paradigm	Consensus has paradigms and generalizable findings	[19, 37]
6	Emphasis on description and advice	Focus on models and numbers	[25]
7	Holistic (organic / river-like)	Component (crystalline / tree-like)	[38,40]
8	Focus on features, qualitative and complex	Focus on the world, little and simple	[38]
9	The subject of study is the social sciences of man, which has the power of thought and shows that it is immaterial.	The subject of study of hard sciences such as physics or chemistry is inanimate nature (material ontology)	[26]
10	flexibility	Inflexibility	[27]
11	More emphasis is placed on abstract and subjective methods	Scientists identify the world based on objective and tangible methods	[27]
12	They generally study local traditions by emphasizing the understanding of specific people, events, or different periods	They seek to derive general rules through reproducible and provable experiments	[39,40]
13	The main subject is limited to the study of human behavior among all phenomena, the study of the collective structures of human beings.	The study of the behavior of all the phenomena of the world; With the exception of humans, the study of the natural world	[35,41,42]
14	Study of human science and their culture	Study of the natural world	[38, 43]
15	Constructivism is associated with 'soft' science	Positivist-realism is associated with "hard" science	[35]

RESULTS

The first charter to be analyzed in this study is the Charter for the Restoration of Historic Monuments [44]. In general, the view of this charter is based on interventions and how they are done in monuments and archeological sites. Most of the approach of this charter is to pay attention to hard sciences, but there are also cases related to soft sciences. In fact, there was no charter in this regard from 1940 to 1950, until a document was formed in The Hague in 1954 to protection cultural property in the event of armed conflict. In the post-war period, as mentioned, the focus was on the conservation of historical monuments during the war. Then in the 1960s we see the formation of another important international document in the field of conservation and restoration; That is, the International Charter for the Conservation and Restoration of Monuments and Sites [45]. This charter seeks to correct the flaws and criticisms leveled at the 1931 Athens Charter.

From 1970 to 1980 there were several international documents. Public awareness through educational media of the dangers to heritage is a common theme in most international documents of this decade (Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property 1970[46], Convention Concerning the Protection of the World Cultural and Natural Heritage 1972 [47], The Declaration of Amsterdam 1975 [48]) that is seen and emphasized. The Burra Charter is perhaps the most well-known document at this time. From 1980 to 1990, it focused more on the same issues as in the 1970s. With the difference that in the late 1980s, the approach of international documents tends almost towards issues related to soft sciences, and less attention was paid to hard science in documents. It can also be said that the first recommendations, which have a completely intangible approach, were presented in 1989 by UNESCO for the "Recommendation on the Safeguarding of Traditional Culture and Folklore [49] ". Since folklore it makes up of individual or collective intellectual creativity, it deserves to be protected in a way that supports the protection of intellectual products, so the protection of these concepts requires the expansion of the range of sciences used in the field of conservation and restoration. The next decade, 1990, because the volume of documents submitted is larger than before, and an average of one document is published every 18 months; the share of each of the mentioned degrees is more than before. The 1990 Lausanne Charter [50] is one of the charters that seeks to work with experts in various fields to increase the participation of local cultural groups and improve the level of education in the field of restoration Assist in understanding local indigenous roots, preservation, conservation and managing local monuments. The Charter believes that the conservation of cultural heritage can not only be based on archaeological techniques, but also requires a wider field of professional and scientific information and skills.

Some elements of the archaeological heritage form part of the living traditions of the indigenous people, and the participation of local cultural groups is essential to support and protect such sites and monuments. On the other hand, another very important document at this time is the Nara document [51], which was formed in 1994 in Japan. The main focus of this document is on conservation measures and the expression of collective human memories in cultural-historical heritage, most of which are examples of the approach of soft sciences in conservation. In 1999, the Indigenous Heritage Charter was drafted in Mexico [52]. The Charter emphasizes that indigenous heritage is an integral part of the cultural landscape and should be considered in the development of conservation approaches. Indigenous heritage also includes not only the physical form and texture of buildings, structures, and spaces, but also the methods used and understood, and the spiritual traditions and associations associated with them. Also include.

It is safe to say that in terms of the number of international documents related to cultural heritage and conservation and restoration, the highest number was from 2000 to 2010. Of course, this density increased sharply, especially in 2003 and 2005, which was unprecedented. In 2000, the Mexico City Declaration and the Budapest Declaration on World Heritage (2002) were issued, which focused on the role of community education and their active participation in conservation and restoration. In general, the documents in 2003 Has been emphasize people's participation in conservation, respect for cultural diversity and human creativity, the use of traditional knowledge and genius for care, educational and awareness programs, attention to the social value of heritage and in some cases the interventionist approach.

The year 2005, like 2003, has an important role in the field of cultural heritage, because this year, several important documents were formed in this field (See Table 3). What is important in 2005 is to pay attention to components such as preserving and promoting the diversity of cultural expressions, the role of cultural traditions in creating value, public awareness and active involvement of people in conservation, interaction between people and heritage sites, Along with other components such as people's participation and their active role in conservation, which has been emphasized in the past.

In 2008, a new charter was formed in Quebec, Canada, which emphasized new concepts compared to previous documents. The new concept of cultural ways, as a consequence of the development of knowledge of cultural heritage conservation, reflects the evolution of ideas related to cultural property as well as the growing importance of values related to the regional context and scale and reveals the macro structure of heritage at different levels. The importance of intangible elements in giving meaning to the cultural path is one of the most important concepts considered in this charter. Another charter established by ICOMOS in 2008 is the ICOMOS Charter for the Interpretation and Presentation of Cultural Heritage Sites [53], which aims to establish the basic principles of interpretation and presentation as essential components of heritage conservation efforts and as a means of raising public awareness and understanding of cultural heritage sites. Facilitating the understanding of cultural heritage sites and promoting the presence and awareness of all in order to need their help in supporting and protecting the components that are emphasized in this charter.

In 2010, New Zealand adopted a Charter entitled the ICOMOS Charter for the conservation of Valuable Cultural Heritage Sites [54]. The charter states that the conservation of a site must be tangible and intangible, based on an understanding and appreciation of all aspects of the value of cultural heritage. All existing forms of knowledge and evidence are a means of understanding the place and value of cultural heritage and the importance of cultural heritage. Therefore, as mentioned, mentions knowledge and science as a means to understand the values of cultural heritage and its importance. On the other hand, it deals with the issue of indigenous cultural heritage as a component of identity and holder of cultural meanings and values, which indicates the importance and value of using soft sciences in this field. This document also addresses the importance of the type of physical interventions and research that are components of hard science. Therefore, a holistic view of science can be seen in this document. However, it deals with components that are prominent features of soft science.

Since such issues are considered as components of soft sciences, the importance of soft sciences in this statement can be understood. 2011 is an important year for international documents because 4 important documents with a soft science approach were adopted this year. The first document is Warsaw Declaration in Poland deals with culture, memory and identity [55]. The

document states that documentary heritage is of particular importance for social cohesion, as it forms the basis for dialogue, respect and mutual understanding in the relations between civilizations, societies and social groups. The Valletta Principles in 2011 is another of these documents that shows a comprehensive approach to science [56]. The Dublin Principles is another document adopted in Dublin in 2011. Like other documents of this year, this document also focuses on components such as; The importance of human skills involved in old industrial processes in conservation, the importance of transmitting the value of documented heritage to the younger generation, the collection of oral or written stories of people related to conservation and public accessibility have been emphasized that all components are related to soft sciences. Along with advances in science and technology, international documents also approve related instruments in line with these advances [57]. In 2012, a document called the Vancouver Declaration was adopted by UNESCO [58]. The Declaration emphasizes components such as raising public awareness of digital conservation, working with international professional associations and other international institutions, and the importance of educational programs. In 2014, the Florence Declaration on Heritage and Landscape as Human Values was adopted. This Declaration reflects the goals of ICOMOS and its work with UNESCO in assessing the tangible and intangible values of World Heritage property and is an opportunity to bring together the specialized skills of the organization [59]. In 2015, recommendations were adopted on the protection and promotion of museums and collections, their diversity and their role in society. The protection and promotion of cultural and natural diversity are major challenges of the twenty-first century.

In this respect, museums and collections constitute primary means by which tangible and intangible testimonies of nature and human cultures are safeguarded. Museums have great potential to raise public awareness of the value of cultural and natural heritage and of the responsibility of all citizens to contribute to their care and transmission.

In fact, the approach of these recommendations is all soft sciences. UNESCO in 2015 presented a document on the conservation and preservation of documentary heritage states that documentary heritage has a universal and lasting value to society and emphasizes the importance of access to and use of it as a tool for understanding social, political, collective as well as personal history.

The Barcelona Declaration, adopted by UNESCO in 2018 [61], aims to be an open initiative, welcoming all stakeholders willing to engage with this commitment - stakeholders such as tourism and cultural public administrations, private stakeholders and civil society representatives, academics and experts from different fields, as well as the citizens of and visitors to destinations. Another Declaration to be presented by UNESCO this year was the Geneva Declaration [62], which emphasizes the importance of human rights and cultural heritage. This document states that Cities and local governments are the first layers of governance close to the local population; as such they have a special legitimacy, capacity, and responsibility to protect cultural heritage and human rights. Among the issues addressed in this document is the right of people to participate and to join a variety of cultural heritages. This document can also be considered a strong point in the type of attitude towards local people and residents and their role in conservation.

Table3. *Documents study by year and the most important dimensions of each document.*

Decade	year	Documents reviewed	The most important dimensions of any document
from 1930 to 1940	1931	Charter for the Restoration of Historic Monuments (Athens)	The viewpoint of this charter is based on interventions and how they are done in monuments and archeological sites.
from 1940 to 1950	------	---------------	--
from 1950 to 1960	1954	Second Protocol to the Hague Convention for the Protection of Cultural Property in the Event of armed Conflict	Educational and information programs
	1960	Recommendations for the most effective museum presentation tool for everyone	Public access and non-discrimination

from 1960 to 1970	1964	International Charter for the conservation and Restoration of Monuments and Sites (Venice Charter)	Its predominant focus is on components that are particularly relevant to the hard sciences - the interventionist approach - the use of techniques - attention to physical evidence in conservation
	1967	Kyoto American Criteria	Raising the level of public education and encouraging people to protect cultural heritage - Emphasis on cultural, educational and social reasons of historical sources - Attention to physical evidence in protection - Interventionist approach - Awareness and recognition
from 1970 to 1980	1970	Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property	Participation of people and public institutions - Giving information and awareness to the public - Education against theft - Emphasis on the establishment of scientific and technical institutions
	1972	Convention Concerning the Protection of the World Cultural and Natural Heritage	Awareness and identification - use of the most advanced techniques of protection, preservation, identification and restoration of cultural and natural heritage - Awareness of the public through educational means from the dangers to heritage
	1975	The Declaration of Amsterdam	Special attention to the cultural and social nature of the physical elements - Expansion of education, recognition and respect for the past at all levels of education - Establishment of public counseling institutions
	1976	Cultural Tourism Charter	Using experts and the most advanced new technology resources - educational and information programs
	1979	Burra Charter	Education and awareness and public involvement in conservation and restoration - Training of experts and technicians - Attention to all sciences - Attention to physical evidence in conservation - Interventionist approach - Anatomical perspective Establishment of popular organizations and organizations - Encouragement to support historical monuments
from 1980 to 1990	1982	Charter of Florence Historic Gardens	Public persuasion - raising awareness - paying attention to scientific principles in the reconstruction of historic gardens and emphasizing the teamwork of experts
	1987	Charter for the Protection of Cities and Urban Areas (Washington Charter)	Paying attention to the participation and intervention of residents, for the success of the conservation program - the activities of public associations for the protection of heritage - Providing specialized training for all residents of conservation-related occupations
	1989	Recommendation on the Safeguarding of Traditional Culture and Folklore	Intangible conservation of folklore - Attention to socio-cultural identity - People's participation in conservation- Introduction and dissemination of popular culture - Attention to folklore as a cultural expression
from 1990 to 2000	1990	International Charter of Archaeological Heritage Management	Active participation of the general public, especially when it comes to indigenous heritage - special attention to soft sciences and hard sciences - indigenous education
	1992	Charter for the Care of Historic Cities and Historic Areas of the United States of America	Educate and involve indigenous peoples in conservation
	1994	Japan Nara Document	Recognize and respect the cultural values of all cultures and communities
	1996	Sofia Charter	Promoting public access to underwater cultural heritage - public awareness of research results and the importance of underwater cultural heritage through public introduction
	1998	Stockholm Declaration	The right to respect and validity of indigenous cultural heritage as a document of identity - the culture of any nation within the human family - the right to form associations for the preservation and promotion of cultural heritage
		Indigenous heritage charter	Pointing out the importance of cultural values - Pointing out that conservation and restoration is a specialized and

		1999		multidisciplinary discipline - Paying attention to traditions and intangible links of heritage - Educational and awareness-raising programs for communities
			Principles of preservation and maintenance of historic wooden structures	Recreating the values related to the cultural status of historic wooden structures through educational programs - an approach based on intervention and the use of various techniques
			International Charter on Cultural Tourism, Tourism Management in Heritage Credits	Facilitate access to the host community - Promote respect for the community's living cultures - Tourism Cultural exchange tools
from 2000 to 2010	2000	Mexico City Declaration	Education for conservation and adaptation to contemporary living standards - Active participation of society in conservation
	2002	Budapest Declaration on World	Heritage Active participation of the community in conservation - education and awareness
	2003	Convention for the Safeguarding of the Intangible Cultural Heritage	Ensuring respect for intangible cultural heritage - Respect for cultural diversity and human creativity - Active participation of indigenous peoples in conservation
		ICOMOS Principles for the maintenance and conservation - restoration of wall paintings	Perception of tangible and intangible values by society - Respect for the ritual function of mural painting - Study of material and immaterial values of painting - Attention to physical evidence in protection
		The Hoi An Declaration on Conservation of Historic Districts of Asia	Maintaining local, interdisciplinary and international cooperation - Respect for cultural diversity and human creativity - Participation of people, associations and organizations
		UNESCO Declaration on Deliberate Destruction of Cultural Heritage	Respect for cultural heritage in the community - awareness and educational programs
		Principles For The Analysis, Conservation And Structural Restoration Of Architectural Heritage	Consider physical heritage in a cultural context - Architectural heritage protection requires a multidisciplinary approach - Interventional perspective
		Nizhny Tagil Charter For The Industrial Heritage	Interdisciplinary approach - Paying attention to the general tendency towards industrial heritage - Explaining the meaning and value of industrial sites - Participation of people, associations and organizations - Respect for cultural diversity and human creativity
	2005	Xian Declaration	Paying attention to the social value of heritage - people's participation in conservation. Awareness and educational programs-paying attention to the cultural nature of physical elements
		Convention on the Value of Cultural Heritage for the Community of the Council of Europe	Individual and collective responsibility for heritage - The link between cultural heritage education and vocational training - Awareness and educational programs - People's participation in conservation - Comprehensive and intermediate attention to science - The role of cultural heritage in peaceful coexistence
		Convention on the Preservation and Promotion of the Diversity of Cultural Expressions	Preserving and promoting the diversity of cultural expressions - The principle of equal dignity and respect of all cultures - Awareness and educational programs - People's participation in protection - The role of individuals and social groups in disseminating cultural expressions
	2008	ICOMOS Charter for Cultural Guides to Quebec, Canada	Multidisciplinary of research related to cultural path - The importance of intangible elements in giving meaning to cultural path - Reflection of people's interactions in cultural paths - Manifestation of social dynamics processes in cultural paths - Awareness of people about cultural paths - Understanding the status of path Cultural-- Identifying evidence of mobility and relationships between people

		ICOMOS Charter for the Interpretation and Presentation of Quebec-Canada Cultural Heritage Sites	Cultural, social, economic and sustainable benefits for stakeholders - Multidisciplinary research related to site interpretation - Attention to the intercultural status of the site - Reflection of people's perceptions of the site - Site interpretation based on living cultural traditions - Public access to information related to the site Site - Paying attention to oral examples and intangible elements in cultural heritage sites
		Declaration on the Preservation of the Spirit of Place	The Importance of Intangible Cultural Heritage in Making Meaning of Heritage - Local Residents' Awareness of Preserving the Spirit of Place - Promoting Educational Programs for Better Preservation and Promotion of the Spirit of Place
from 2010 to 2020	2010	New Zealand ICOMOS Charter for the Protection of Valuable Cultural Heritage Sites	Understanding the tangible and intangible values of cultural heritage - The role of indigenous cultural heritage in identity and well-being - Respect for all forms of knowledge and evidence available - Interventionist perspective - Participation of people and popular institutions
		Lima Declaration on Disaster Risk Management of Cultural Heritage	Interdisciplinary analysis of heritage buildings - Raising awareness of local communities in reducing risk - Education and awareness in crisis management - Education and awareness of younger generations about heritage
	2011	Warsaw Declaration	The Importance of Documentary Heritage for Social Cohesion - The Importance of Memory Recorded in Documentary Heritage - Encouraging a Better Understanding of Communities and Cultures - The Importance of Transmitting the Value of Documentary Heritage to the Young Generation
		Valletta Principles for the Preservation and Management of Historic Cities and Urban Areas	Respect for and protection of local community identity and cultural activities - Search for common goals between local communities and expert groups - Respect for the cultural diversity of different communities and social bodies - Intervention of people and stakeholders in conservation and planning - Efforts to preserve and support traditional customs Indigenous people - Respect for tangible and intangible cultural values in interventions - Preservation and management based on multidisciplinary studies - Participation and public access
		Dublin Principles for the Protection of Landscaping Structures, Rangelands and Natural Heritage Landscapes	Manifestation of the value and prestige of industrial heritage in tangible and intangible documents - The importance of human skills involved in ancient industrial processes in conservation - An approach between knowledge and multiple dimensions - Collecting oral or written stories of people related to conservation - Awareness and public recognition
		Paris Declaration of Heritage as a driver of development	Increase awareness and increase the ability of conservation experts and site managers - Assisting local communities in taking ownership of their heritage - Involving people and stakeholders in conservation and planning - Utilizing new media to disseminate heritage knowledge - Encouraging communities as stakeholders in the cultural and tourism sectors
	2012	Vancouver Declaration	Raising public awareness of digital protection - Implementing educational programs and global educational approaches
	2014	Florence Declaration on Heritage and Landscape as Human Values	The Importance of Identities, Social Cohesion and Community Presence - Increasing Cultural Knowledge and Awareness of Heritage - Sustainable Preservation and Preservation of Intangible Cultural Heritage - Recognizing the Significant Link between Dynamic Cultural Places and Traditions
	2015	Recommendations on the protection and promotion of museums and collections, their diversity and their role in society	Protecting and promoting cultural and natural diversity The main challenge of the 21st century - Supporting the social role of museums - The social role of museums, along with heritage preservation - Cooperation between museums and cultural and scientific institutions - Education and awareness

	Documentary heritage	Public access to documentary heritage - Education and awareness - Encouraging more collaboration between memory institutions and the private sector
2018	Barcelona Declaration	Paying attention to the residents of the local community as the main stakeholders - Creating a balance between place, people and trade - Intercultural dialogue between citizens - Paying attention to tourism as a human activity
	Geneva Declaration	The right of people to participate and to join all kinds of cultural heritage - Simultaneous protection of heritage and people living - The importance of preserving memories and creating cultural resources - Using all capacities in the field of heritage protection and cultural rights

Table 4 shows the frequency of each code from A to G. This frequency is presented in Table 5 in terms of percentage.

Table4. *Number of each code over time according to frequency.*

	From soft to hard →						
Decade/code	**A**	**B**	**C**	**D**	**E**	**F**	**G**
From 1930 to 1940	3	0	0	0	0	0	5
From 1940 to 1950	0	0	0	0	0	0	0
From 1950 to 1960	1	0	0	0	0	0	0
From 1960 to 1970	6	4	1	0	0	0	8
From 1970 to 1980	21	3	2	4	5	1	9
From 1980 to 1990	18	0	0	6	0	1	0
From 1990 to 2000	34	2	1	6	2	1	19
From 2000 to 2010	117	7	3	34	5	9	16
From 2010 to 2020	137	1	4	34	4	4	7

Table5. *Weight of each codes over time in percentage.*

Decade/code	**A**	**B**	**C**	**D**	**E**	**F**	**G**
From 1930 to 1940	37.5	0	0	0	0	0	62.5
From 1940 to 1950	0	0	0	0	0	0	0
From 1950 to 1960	100	0	0	0	0	0	0
From 1960 to 1970	31.58	21	0.19	0	0	0	42.1
From 1970 to 1980	46.66	6.66	4.44	8.9	11.11	2.22	20
From 1980 to 1990	72	0	0	24	0	4	0
From 1990 to 2000	52.3	3.07	1.53	9.23	3.07	1.53	29.23
From 2000 to 2010	61.25	3.66	1.57	17.80	2.61	4.71	8.37
From 2010 to 2020	71.72	0.52	2.09	17.80	2.09	2.09	3.66

DISCUSSION

It may be possible to examine the ratio of different sciences from ontological and methodological lenses, in which three dominant approaches can be seen in international documents. Although it is not possible to accurately draw a border between different conservation and restoration approaches, to some extent, these approaches have been tried to be separated according to international documents and sciences used throughout history.

Modernism Approaches

As can be seen in Table 5, the share of hard sciences in the 1930s was greater than that of soft sciences. In fact, the general view of science that is, special attention to hard sciences and interventionist views, and the dominant attention to issues related to the physics of historical monuments. A view in which a cultural monument is examined more from a physical and material point of view. Various charters have been influenced by people and restoration events over time. From the heart of these charters and existing views, the doctrines of conservation and restoration have been born. The word "doctrine" is infused with concepts of belief—often with religious overtones—and principles of policy. Its Latin word root refers to the process of teaching. Therefore, it is possible to conceptualize these charters and doctrines as a codification of the unified belief system of heritage conservation [63]. The Conservation Doctrine originated from

the renaissance Monumento and Maniera Grande concepts, which in the 19th century developed into the concept of heritage as exceptional presentations of the Past – historical and artistic monuments. Development of the doctrine continued up to the middle of the 20th century, reflecting well-known generic Grand Theories of the Modern Movement (such as that of Progress, or of Art as Human Saviors) [64]. Nicolson raises an interesting question; who are the authors of the majority of conservation charters and doctrines? This question is important as it delimits the perspective of the writers. The concepts of objectivity and rationalism have been historically defined through the male perspective to the exclusion of the female; there is a male bias to knowledge. He believes that the male spirit is seen in most of these doctrines [65]. Until the advent of the Athens Charter in 1931, preservation philosophy was rhizomatic, sending flows of meaning to areas needing the greatest nourishment. The rise of heritage conservation charters starved conservation philosophy and engendered the relatively impoverished system of conservation doctrines that exist today [63]. Conservation doctrines are more objectivist [11]. The supposed objectivity of doctrines should be questioned— especially considering their male-dominated genesis. Some critics have argued that "objectivity is a mistaken ideal reflecting masculinist preoccupations. In these polemics, objectivity itself remains insufficiently examined, a closed box hurled back and forth between rhetorical contestants". These doctrines of conservation were created from the limited, masculine perspective of a few individuals representing the multiplicity of thoughts, ideas, and motivations of thousands of others. The perspectives of women or minority groups were not included in conservation doctrine until the creation of the Burra Charter in 1979. Even today, the evolution of conservation doctrine is still a gender-biased endeavor [63].

This Charter is a product of the early 1930s, an era in which the cinema, scientism, and politics collided with the professionalization of heritage conservation. The impact of cinema on preservation is largely unexplored, but has significant potential to explain our understanding of the genesis of the Athens Charter. The 1920s marks the ascendancy of the cinema as popular culture; largely silent, it gained a voice at approximately the same time the Athens Charter was written. The public images promulgated by Hollywood during this era were foreign, exotic, and eclectic. The architecture of the 1920s reflects a Hodge podge of anachronisms; it is the Hollywood film of the 1920s transposed as static architecture. The exotic places and ancient monuments on the screen inculcated the public into a greater awareness of the objects of the past [63].

The Athens Charter is the discursive formation, or groups of statements explained by the limits of discourse relations that created a regime of "truth" that absorbed the ejected matter of modernism. It is no coincidence that the popularization and professionalization of historic preservation and heritage conservation coincides with the rise of modernism in the 1930s [63].

Many believe that modernity is a cultural, political, economic, social and philosophical set that was in progress since the 15th century until several decades ago. The intellect that was considered essential in the tradition era would be considered essential and sufficient in this period that is recognized as the single criterion to recognize the reality. It was in this period that the new and remarkable forms of the western philosophy were formed in the 20th century and the art, politics and sciences were also evolved influenced by these variations. Modernism had a particular attention to region- orientation, liberty, advancement and pessimism. In this approach, any spiritual force beyond the human intellect would be denied and invalid. The remarkable features that can be addressed for modern thought include: the dominance of humanism, gradual removal and counter-measuring with traditional systems and attitudes, separation of political-social entities from religions (secularism), major reliance on experimental and sensual methodology, positivism as the fundamental methodology of modern science [66].

Truth is evinced in another manner in the Athens Charter; it clearly outlines that it is the object that contains the truth of ages—a series of "concrete testimonies" that can be read hermeneutically in order to determine the course of action in which an intervention should take form [63]. *The Athens Charter, because of its positivist stance, is a highly exclusionary document; at a minimum it excludes the possibility of restoration as an acceptable intervention, constructing a singular truth around the preservation of the status quo. This character is the reason why—as with many doctrines—the words of the Athens Charter were not always followed* [63]. The positivist paradigm is rooted in the realist philosophy of Plato who claimed that knowledge had to be

certain, universal and immutable. Generating such kind of knowledge required following systematic, coherent and methodological procedures as those in natural sciences. Later, Aristotle claimed that knowledge as opposed to belief was truth maintaining that knowledge is universal with true propositions. Positivists claim that people's opinions, values and beliefs about reality might be false and inaccurate without scientific basis. As such, positivists view knowledge management processes as objective concepts that have to be discovered rather than be created by the organization [67]. The ontological stance of positivism is that reality is objective and out there for discovery using universal laws and methods. Thus, knowledge management should be observable and measured based on scientific analysis so as to permit scientific predictions using deductive reasoning [67].

The scientism of the Athens Charter is a product of a discursive junction that occurred in the early twentieth century: the acculturation of science into the mass psyche. "'Scientism'—blind faith in the ability of science to solve all problems—reigned supreme in the first decades of the twentieth century. ... [C]onfidence in the beneficence of modern science was almost limitless" [63]. *Evidence for the genesis of positivistic preservation practice can be found in abundance in mid-twentieth century conservation literature and heavily influenced the creation of the first rules and regulations at the state and local level requiring owners to retain the authenticity of their properties. Fiske Kimball (1935), who echoed Camillo Boito's (1884) principles for conservation, was one of the first American architects that advocated for the need to avoid any hint of subjectivity in practice by maligning the use of the "imagination" and upholding a "valid" scientific approach, which could restore the one and only "original reality" of a building through "substantial accuracy and perfection." This kind of scientism was a consistent thread throughout early conservation practice* [68]. *Wells believes that Taylorism—also known as the "Scientific Management movement"—rose to prominence in the early decades of the twentieth century. Taylorism constructed a reality from a narrow perspective and labeled it as truth, even though it missed the larger picture. In a similar sense, the Athens Charter also constructed a narrow reality, labeled it as truth, and also missed the larger picture of other ways of intervening in the lives of historical objects and the attendant potential*

to positively and negatively affect human beings [63]. Between 1931 and 1964, there appears to have been few additions or modifications to existing heritage doctrines. Certainly there were no documents of the international magnitude of the Athens Charter written in this time. This stasis is remarkable considering the changes that occurred in the thirty some years between the Athens and Venice charters which include World War II, the popular rise of modernism, and the Cold War. The salient characteristic of the Venice Charter is its highly derivative nature; this doctrine is far more evolutionary than revolutionary, and in some ways represents anachronistic themes. The 1960s were a time of growing distrust in science as a blind faith paradigm. This era also marked the rise of post-modern thought that questioned the possibility of singular truths and hegemonic discourses. Yet again, the Venice Charter appears to resist these cultural disjuncts [63].

The 1964 Venice Charter is more of a holistic view of science. From the study of the articles of this charter, it is understood that focus is on components that are particularly relevant to the hard sciences. As can be seen in the diagram, the reference to hard sciences was higher than soft sciences until the end of the 1960s. According to the Venice Charter, authenticity is the factuality of material evidences that are identified objectively using scholarly methods, i.e.: "the process of restoration is a highly specialized operation. Its aim is to preserve and reveal the aesthetic and historic value of the monument and is based on respect for original material and authentic documents. It must stop at the point where conjecture begins" [64]. If the Athens Charter was positivist in nature, the Venice Charter can be described as hyper-positivist. For instance, Article 2 directs: "The conservation and restoration of monuments must have recourse to all sciences and techniques which can contribute to the study and safeguarding of the architectural heritage". An important theme that the Venice Charter discusses in detail, and which complements the Athens Charter, is "authenticity." Authenticity is framed as a transcendental connection from the past to the present. An object can only "bear witness" to the true nature of the past if its physical fabric remains unchanged. In order to see if a monument has this kind of evidence, the Venice Charter advocates reading the monument as a document to establish its hermeneutical truth and deduce its authenticity [63]. Jokilehto believes that the majority of participants were

European and it was written mainly by Europeans, there could be difficulties in its application in all cultures [69]. In fact, these documents are closely related to hard sciences, and as stated, the dominant view in these documents is special attention to hard sciences in conservation and restoration. In other words, it is the same as "scientific conservation".

Muñoz Viñas explains that this "scientific conservation" is guided by the unspoken material theory of conservation which is, in turn, based upon the need to preserve the object's material "truth", and the belief in scientifically grounded knowledge. The first assumption (the need to preserve the object's material truth) can be divided into two different principles: first, it emphasizes that scientific conservation has a fundamental need to preserve the integrity of the object, and, therefore, that it is a truth-enforcement operation; second, it stresses that for scientific conservation, the integrity of the object fundamentally lies in its physical features and constituents [11]. The growing popularity of the cultural relativist position was also a reaction to 'modernism'. Just as there was a reaction against the products of the modernist movement in architecture, so generally modernism is said to have faced a 'crisis of representation' in the last quarter of the twentieth century [70].

Post Modernism Approaches

The resolution of the Amsterdam Congress in the 1970s can be described as a document that takes a different approach from its previous documents. It emphasizes more on issues such as the need for participation of all members of society in conservation and restoration, as well as the expansion of education at all levels, addressing the social factors involved in conservation and restoration and, most importantly, special attention to the cultural nature of physical elements. This issue and the type of approach show that attention to soft sciences involved in conservation and restoration has become more and more important and emphasized. The ICOMOS Charter of Australia for Culturally Reputable Places (Burra Charter) is perhaps the most well-known document at this time. The most important issue in the 1970s was the issue of education and awareness and the involvement of the people in conservation. The most important event what is the ratio between soft and hard sciences is that since the 1990s, codes A and G have found a steady trend, meaning that A has an increasing trend and G has a decreasing trend.

What has emerged in recent decades in connection with the immaterial dimension of historical monuments has become the background that in 2003 was established one of the most important international documents, the Convention for the Safeguarding of the Intangible Cultural Heritage by UNESCO, which paid special attention to intangible artifacts. What is most important in this convention is ensuring respect for intangible cultural heritage, promoting local, national and international awareness, respect for cultural diversity and human creativity, and promoting the function of intangible cultural heritage in society. Which basically points to the importance of using soft sciences in this field.

Until the Australian Burra Charter (1979-88), conservation doctrine assumed that heritage was univocal; all of humankind valued and thus had responsibility for the care of the world's monuments. An important consideration was that these doctrines were entirely Western centric in their recommendations. Beginning the late 1970s, there was a growing recognition of non-Western values in the conservation of heritage. In the United States, the federal government protected the sacred sites of Native Americans with the American Indian Religious Freedom Act of 1978 and in Australia the federal Aboriginal Land Rights Act of 1976 established three councils to claim land for Aboriginal peoples. The first heritage doctrine to recognize this shift in values to non-Western ideas was the Burra Charter which Australia ICOMOS adopted in 1979 and revised in 1981 and 1988 [63]. From the epistemological point of view, prior to the Burra Charter, significance was treated basically from the perspective of empirical-positivist philosophy. In this approach, significance is objectively determined, because values are considered qualities inherent in a site. Therefore, identifying and interpreting values depend only on the state and advance of knowledge, and on the precision of the observation instruments. In spite of the great advances of the Burra Charter in relation to the positivistic view, it is still present in the Charter as article 1.2 states that "[C]ultural significance is embodied in the place itself, its fabric, setting, use, associations, meanings, records, related places and related objects", especially considering that cultural significance is a quality that subjects associate with a cultural resource [71].

The Burra Charter introduced the concept of cultural significance and its associated subjectivity. The Charter also changed the way significance was understood, by enlarging the

scope of its values and attributing their identification to the agents involved in the process of conserving the site: the stakeholders [71]. Some believe that this document, introduced the notion of cultural significance as a measure of authenticity, to guide preservation, restoration and reconstruction in a way that looked beyond physical integrity to include the meaning of heritage for communities [72]. Rather than searching for a univocal truth as previous doctrines had done, the Burra Charter considered the values of non-dominant groups. While not abandoning a "scientific" approach, this document for the first time speaks of social value, which as Article 2.5 explains "embraces the qualities for which a place has become a focus of spiritual, political, national or other cultural sentiment to a major or minority group". Perhaps the most enlightening statement in this charter is found in Article 2.6: "The categorization into aesthetic, historic, scientific and social values is one approach to understanding the concept of cultural significance. However, more precise categories may be developed as understanding of a particular place increases." By leaving the door open to different ways of understanding, the Burra Charter denies the singularity of truth that previous doctrines sought to reify [63].

That the Burra Charter arose in the late 1970s and was refined in the early 1980s is not surprising given the immense activity of ethnographers and feminists in redefining the nature of culture. During this time, anthropology quickly absorbed the poststructuralist writings of Foucault, Derrida, Lacan, and Baudrillard and abandoned the structuralism of Levi-Strauss. The ideas of these authors can be summed as representing the impossibility of finding hermeneutic truths. Thus, the Burra Charter, as a product of its time, reflects the beginning of cultural relativism as espoused by contemporary ethnographers and recognizes that historical significance is a cultural construction and not a truth that is an inherent characteristic of an object. This expansion of cultural relativism will become more apparent in later heritage doctrines [63].

Socio-cultural analysis supports the view that the subject is the active agent in the process of attributing meanings to objects, but it understands the subject is placed within a collective entity, and that he/she does not act, in isolation, as an individual. Howard Green (1998) supports this view and adds that significance should be determined by many social groups and not only by specialists. For him, significance is a concept socially built up from the interaction of many social groups, as it relates to meanings given by a plurality of actors, and throughout a long-term process. Accordingly, significance is multiple and diverse in time and space, and is always assessed in the present. It is socially and historically determined in a continuous interactive movement among groups and individuals [71].

Although cited by Pérez et al, Bern is criticize the Burra charter for parceling out the fields of knowledge, for instance, art for architects and history for historians, a feature that hardly contributes to empowering local communities. Thus, an appropriation of patterns, objectives, and strategies of heritage conservation by communities will only occur if they are produced "from, with and for" the people [73].

From 1980 to 1990, it focused more on the same issues that were considered in the 1970s. The document (Recommendation on the Safeguarding of Traditional Culture and Folklore) presented by UNESCO in 1989 shows the tendency towards soft sciences.

In the academic research on cultural heritage since the 1980s, the attention has increasingly shifted from objects and collections to the audiences. More and more, scholars are emphasizing that, in addition to professionals and experts, other individuals and groups should participate in discourses and decision-making related to heritage, so that multiple voices and interpretations can be heard [74]. This different approach, which started almost from the Burra Charter, continued and was even strengthened in later documents in the late 1980s, the approach of international documents tends almost towards issues related to soft sciences, and less attention was paid to hard science in documents. It can also be said that the first recommendations, which have a completely intangible approach, were presented in 1989 by UNESCO for the "Recommendation on the Safeguarding of Traditional Culture and Folklore ". Although it has been mentioned that traces of postmodernism can be seen in different places in the 1960s, [75]. It can be said more specifically that it can be seen in the international documents of this movement in the Bora Charter of 1979. Elitism is supposedly replaced, in postmodernist thinking, by cultural democracy. All cultures, all tastes, all behaviors are of value. Universalism – the belief that it is possible to establish a set of standards applicable to the whole modern world – is replaced by a cultural relativism in which it is argued that different cultures have and need different standards [70].

From 1990 to 2000, the volume of documents submitted is higher than before. In this period, the most important issue that can be seen in most documents is the emphasis on the role of people and public awareness in the protection of cultural heritage. This decade shows that the attention of prisms in addition to the physical dimension and structure that are rooted in hard sciences Aspects that can be studied with soft sciences are also mentioned. Therefore, it can be said that components such as respect for identity and culture and attention to traditions and intangible links of heritage, along with the importance of educational programs for people and conservationists and public awareness have been considered. The important point in this decade, as in previous decades, is that the share of soft sciences is greater than that of hard sciences.

The Nara document in 1994 is another international document that is controversial. If the Burra Charter opened the door to cultural relativism, the Nara Document on Authenticity blew the door off its hinges. Item six in the preamble goes to the heart of the matter: "Cultural heritage diversity exists in time and space, and demands respect for other cultures and all aspects of their belief systems. In cases where cultural values appear to be in conflict, respect for cultural diversity demands acknowledgment of the legitimacy of the cultural values of all parties." This statement, in large part, invalidates the supremacy of the Venice Charter. As Seung-Jin Chung (2005) observes, "the Venice Charter is based on Western attitudes to architecture and conservation. ... [I]t is becoming clear that it is unreasonable to treat sites of East Asian significance according to conservation ideas that are strongly based on a Western architectural background; East Asian architecture is conceived in a different spirit from Western architecture". For East Asian architecture, authenticity—in the Western sense of the preservation of fabric—is not important; rather the goal is to preserve the "spiritual messages embodied in the architecture".

Thus, East Asian conservation values are evident in the frequent renewal and replacement of building fabric while retaining the semiotic or communicative meanings of the object. The Nara Document on Authenticity is important because it is the first conservation doctrine where an upsetting of previous conservation doctrine is sanctified as an acceptable practice [63]. The 1994 "Nara Document on Authenticity" updated the Venice Charter recognizing that respecting cultural and heritage diversity required

acknowledging that judgments about authenticity could be linked to a variety of sources of information and valuation that were not entirely dependent on material continuity but included essential intangible elements [64, 72].

Post- Postmodernism Approaches

In the late 1990s, Hal Foster declared that post-modernism was old-fashioned. Also in the beginning of 21st century, Jose Lopez and Garry Potter confessed that post-modernism have been old-fashioned as a thought phenomenon. In addition, Drucker and Mcvarish (2002) stated that the usefulness time of postmodernism was passed. Also, Linda Hatching believes that post-modernism is a 20th century phenomenon and its time has now been passed [66].

Passage from post-modernism to beyond it, namely post-post modernism. This perspective has motivated fresh debates and issues in various realms as philosophy, politics, culture and social sciences, and has created new visions in training [66]. Although these changes may not have been completely made in the field of conservation and restoration, but there are signs of a new change that has many names for it, but it seems to "post-modernism" be more appropriate.

The year 2003 can be considered as a turning point in the history of conservation and restoration, because in this year a large number of international documents related to cultural heritage, conservation and restoration, and especially in relation to intangible works, were formed. In general, it can be inferred that this year more attention is focused on the aspects of soft sciences, although in some cases it refers to the use of hard sciences. The point to consider at this time is to promote the diversity of cultural expressions and the importance of these issues in conservation and restoration, a concept that has received less attention so far. In general, the role of intangible heritage in the years 2000 to 2005 has received more attention than before, which also emphasizes the importance of using soft sciences. The ICOMOS Charter for the Interpretation and Presentation of Cultural Heritage Sites, established in 2008, addresses the intangible elements of a site's heritage, such as spiritual and cultural traditions, stories, dance, drama, literature, Local customs and culinary heritage must be taken into account in the description and interpretation of the site. Since it emphasizes the protection of the tangible and intangible values of cultural heritage sites and the transmission of the meaning of cultural heritage

sites, it can be inferred that it is one of the documents that places great emphasis on soft sciences. As explained and can be seen in Table 5 and Charts 1 and 2; Codes A, B, C, D and F have increased compared to the previous decade and codes E and G have decreased. This means that the weight of soft and neutral science-related codes has increased, while the hard science-related codes, especially the G code, which is the most important code in this branch, have decreased significantly. This declining trend began a decade ago and continues to this decade.

The Cultural Continuity Doctrine evolved from the concept of heritage as cultural resources for contemporary and future cultural development, a natural and necessary component in everyday life of individuals, communities, and societies, helping to preserve, continue and recreate inclusive, philosophic, societal environments. This concept originated from cultural anthropology, sociology, protection of wild life, as well as sustainable development, human and social rights, and similar discourses of Late Modernity. It puts less emphasis on "Historic Deeds", "Masterpieces of Art" or "World Wonders", but increasingly identifies cultural heritage with the living environment and the socio-cultural development. An essential rethinking and remodeling of interactions between society and its heritage is taking place [64]. These ideas are evident in some legislation of the early 21st century, such as the European Landscape Convention (2000), the UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage (2003), and in particular the Council of Europe Framework Convention on the Value of Cultural Heritage for Society [76].

In 2005, the Faro Convention presents a concept of heritage, comprehensive in scope and variety, tolerance and inclusiveness, and is further blurring divisions between the tangible and the intangible. This is a shift from the physical to virtual authenticity, where the visions, related to beliefs, feelings or memories, are of equal importance as physical remains of the Past, thus may be materialized pro Memoria (or other reasons) [64]. Cultural heritage plays an important role for community cohesion at a time when cultural diversity is increasing in European societies(…) . New participatory and intercultural approaches to heritage policies and educational initiatives that attribute equal dignity to all forms of cultural heritage have the potential to increase trust, mutual recognition and social cohesion. In this regard, Irina Bokova, the former UNESCO Director-General, stated at the Abu Dhabi

Culture Summit that '[t]here is a global awakening about the power of culture for security and development'. The UN's 'intellectual agency'— UNESCO —has to be credited for the creation and adoption of the most successful legal instrument pertaining to cultural heritage in recent decades, the 2003 Convention for the Safeguarding of the Intangible Cultural Heritage (the 2003 Convention), with its broad and all-encompassing definition of intangible cultural heritage, understood as follows:

The practices, representations, expressions, knowledge, skills—as well as the instruments, objects, artefacts and cultural spaces associated therewith—that communities, groups and, in some cases, individuals recognize as part of their cultural heritage. This intangible cultural heritage, transmitted from generation to generation, is constantly recreated by communities and groups in response to their environment, their interaction with nature and their history, and provides them with a sense of identity and continuity, thus promoting respect for cultural diversity and human creativity [77].

As this research showed; it may be safe to say that the approach of many international charters towards soft and hard sciences in the last century is almost the same, and there is always a growing trend of the predominance of soft sciences over hard sciences. From 2010 to 2020, the process of documents goes in a different way and offers new concepts. The Paris Declaration on Heritage as a Stimulus for Development in 2011 was adopted at the UNESCO headquarters in Paris. The document addresses the concepts discussed earlier, with the exception that it emphasizes the special involvement of local people and residents in conservation, and encourages communities as stakeholders in the cultural and tourism sectors to address other issues. A noteworthy point in this document is that for the first time, people are mentioned as the beneficiaries of heritage and conservation. In general, as can be seen in the diagram, 2011 is a turning point in the importance of the components of soft sciences, and it can be said that this attention has reached its peak. On the other hand, the Barcelona statement presented by UNESCO in 2018 emphasizes that the residents of the local community should be the main beneficiaries of any activity in their place of residence. They should be consulted and included in the decision-making process from the first stage. Another declaration made by UNESCO this year is the Geneva Declaration. Among the components

seen in this declaration; Simultaneous protection of heritage and people living, the importance of preserving memories and creating cultural resources, promoting education and awareness, especially for young people, and emphasizing people as audiences and stakeholders of cultural heritage. Tables 4 and Charts 1 and 2 show that between 2010 and 2020, codes A and C continued to increase and D remained the same. In the event that hard science-related codes have been declining.

In the twenty-first century, traditional preservation doctrine—as embodied in the Venice Charter—has come under attack for its hyper-positivist messages and lack of cultural relativism. In important ways, the theoretical underpinnings of heritage conservation are moving to an East Asian model that emphasizes the communicative role of the object. For instance, Muñoz Viñas (2005) in his recent work on conservation theory explains that interventions should focus on what we want the historic object to communicate to us based on our culturally-embedded definitions of significance and meaning. "Truth" that exists as an innate meaning in an object which can then be hermeneutically read—i.e., the material fetish—impoverishes the potential contribution that heritage conservation can make to human flourishing. With the exception of the Burra Charter and the Nara Document, preservation doctrine since the Athens Charter has ignored "integral aspects of human existence [such] as values, purposes, and existential meaning, the very qualities that are basic to significance in preservation" [63].

In the past couple of decades, there has been an increasing call to change the ontological perspective of built heritage conservation so that it can incorporate a wider range of sociocultural and experiential values; the aim is not to supplant the dominant positivist paradigm, but rather compliment it with a more holistic, integrative, constructivist paradigm [78]. In the twenty-first century, the understanding and assessment of heritage is increasingly an ontological and epistemological battleground. As the gulf between orthodox and heterodox theory becomes increasingly wider, there appears to be little progress in terms of reconciling their disparate worldviews. In other words, post-post modernism means standing on top of post-modernism and overviewing it. That is to say a type of revision to post-modernism and overview of those ideals established or those bases on which postmodernism relies so as to be able to achieve those ideals [79]. Wells believes that a comprehensive

method that can respond to the needs of today's conservation and restoration society is the methods of Participatory Action Research (PAR) – a social science research methodology that emphasizes social justice and community empowerment and changes the role of heritage experts into expert "facilitators [78]."

The key characteristic of participatory research that differentiates it from other social science research methodologies is the way in which the participants are co-researchers. In other words, the participants are both subjects and researchers; in effect, the community is researching itself. In traditional social science methodologies the researcher and the subject are clearly and permanently delineated, even in those methodologies (such as ethnographies) that try to blur the lines between the two. In participatory research, it is not possible to make this distinction because of the fluidity of the roles that community members play in the process. Louise Fortman refers to participatory research as "interdependent science" because some "questions are best answered in collaboration "[78]. John Heron and Peter Reason argue that PAR's paradigm is essentially constructivist (based Guba and Lincoln's definition, but fails to account for "experiential knowing", the fluid nature of "subjects" and "researchers" reversing roles, and the way in which the participants engage in epistemological definitions. Regardless, PAR shares many of the ontological and epistemological orientations found in heterodox heritage theory, especially in terms of the multiple constructions of reality, the possibility of multiple truths, and empowering communities through control of the meanings of their own heritage. In this latter aspect, PAR also shares some characteristics with post-structuralism and post colonialism in terms of exposing and remedying disparities of power and issues of subjugation. For the purposes of this exploration, the assumption is that PAR has sufficient characteristics that are associated with the constructivist paradigm to assign it to this category [78]. In practical terms, the result of PAR can therefore be a dramatic play, a musical performance, dance, or a collection of art.

Conventional experts can then interpret these non-written materials in written form for distribution to others. Participatory Research in Conservation and Rural Livelihoods is brilliant, passionate, and inspiring. Fortmann and her contributors carefully qualify and complicate the distinctions between knowing and doing, between civil science and conventional science,

and between communities and researchers. In so doing, they impart new richness and complexity to discussions of participatory research and forge a model of deep collaboration that tirelessly confronts difficult questions of power, inclusion, reciprocity, voice, and expertise while successfully blurring the border between natural and social sciences [80]. Mainly because the final objective of a participatory research is not only to gain new knowledge but also to facilitate the local communities and practitioners with open debates about developmental, societal and other issues [81]. When actions are undertaken that address minority heritage and Indigenous communities, participatory approaches are not just advisable, they are necessary, whether to preserve marginalized heritage sites, re-activate local knowledge that would otherwise be lost, or engage Indigenous people in projects located in their own territory [82]. Inspired by urban participatory experiences of the 1960–1970s and influenced by the dissemination of the Brundtland report in the 1980s, in the early 1990s participatory processes started being implemented for the inclusive and effective protection and safeguarding of cultural heritage [83].

People's participation in conservation and restoration is a colorful perspective in international documents, which was first seen in the Recommendation on the Safeguarding of Traditional Culture and Folklore 1989, then in many documents, including International Charter of Archaeological Heritage Management 1990, Mexico City Declaration 2000, Budapest Declaration on World 2002, Convention for the Safeguarding of the Intangible Cultural Heritage 2003, The Hoi An Declaration on conservation of Historic Districts of Asia 2003, Nizhny Tagil Charter For The Industrial Heritage 2003, Xian Declaration 2005, Convention on the Value of Cultural Heritage for the Community of the Council of Europe 2005, Convention on the Preservation and Promotion of the Diversity of Cultural Expressions 2005, New Zealand ICOMOS Charter for the Protection of Valuable Cultural Heritage Sites 2010, Valletta Principles for the Preservation and Management of Historic Cities and Urban Areas 2011, Barcelona Declaration 2018 and Geneva Declaration in 2018, It was strengthened and followed up more seriously.
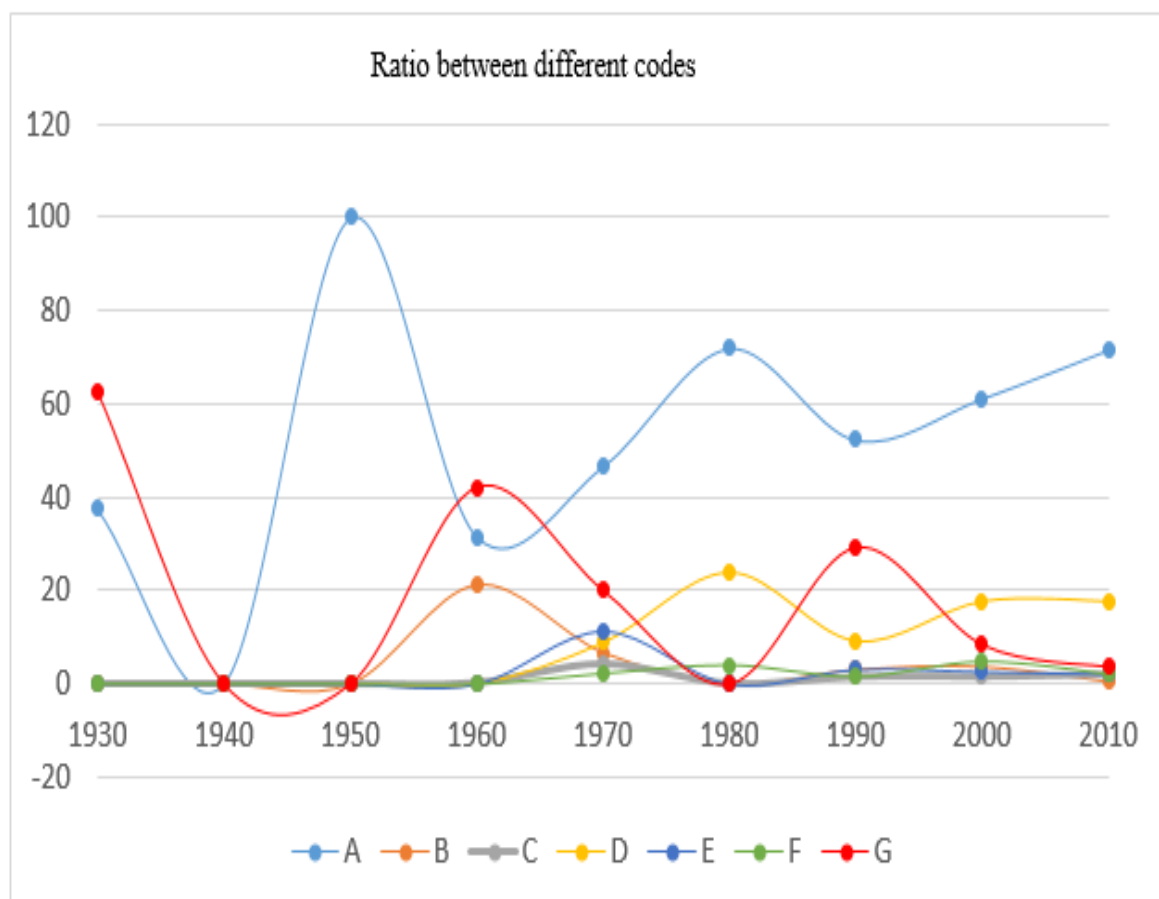

Figure1. *Ratio between codes A to G over time.*

Diagram 2 shows the sum of codes related to soft sciences and the sum of codes related to hard

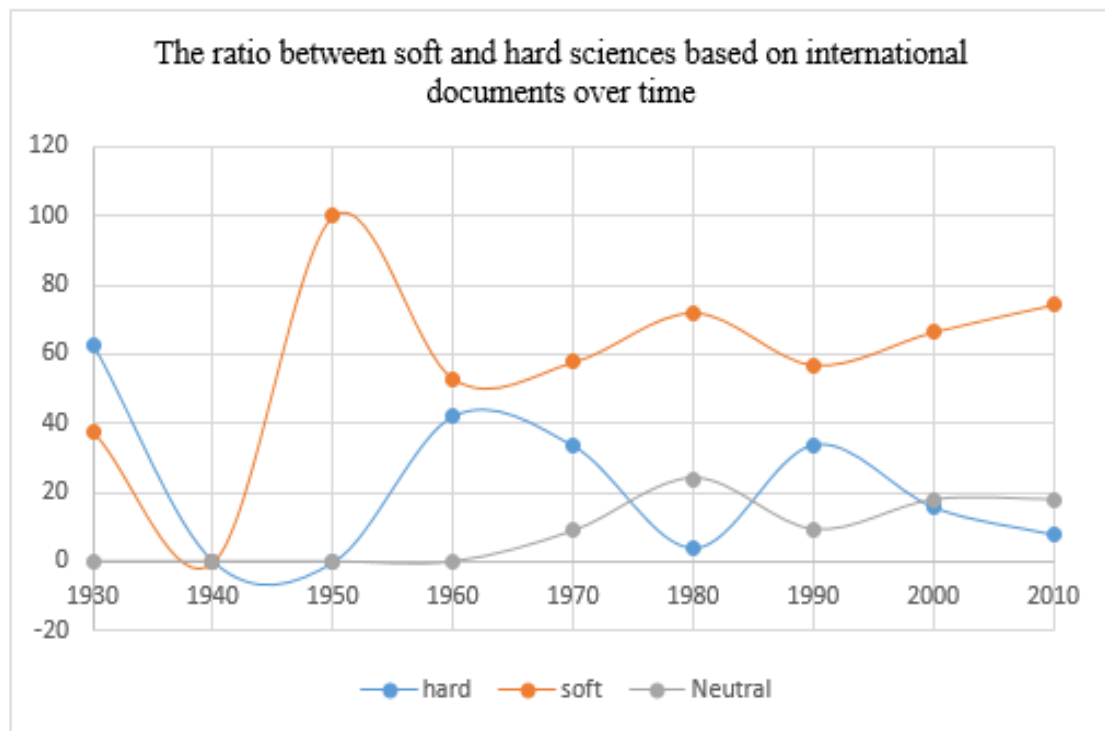sciences as well as the weight related to neutral

code separately.

Figure1. Ratio between soft, hard and neutral sciences over time.

In addition to the above, most documents address participation as a right to access, understand, choose, use, and perform culture and heritage. People-centered (Quito Declaration, 2016, par.26) and community-based (ICOM Resolutions, 2019, res.5) approaches to heritage practices are considered inherent to the right to participate in cultural life, in line with the UN Declaration of Human Rights (Faro Convention, 2005, sec. I. art.1.a; Quito Declaration, 2016, par.12, 26). All rights holders need to participate in development processes fully and meaningfully, including cultural processes (Policy Document, 2015, par.9; Operational Guidelines, 2019, par.12) without discrimination on the basis of age, ethnicity, or gender, involving all relevant stakeholders across scales, communities, and groups (Quito Declaration, 2016, par.26; Policy Document, 2015, par.9; Operational Guidelines, 2019, par.12) [83].

Over the past decades professional scientists have come to value the contribution of local experts and local knowledge to scientific inquiry. This change was strengthened by the shift in conservation practice towards community-based conservation. The shift, in turn, has led to greater interest in how participatory research can contribute to scientific understanding of the conservation, use and management of the natural world [80]. All documents address participation as a driver of conservation, preservation, and safeguarding of natural and cultural resources [83]. Most examples of Community-Based Participatory Research (CBPR) seem to be in the natural sciences.39 Introducing participatory approaches in culture and humanities might need some cautious adaptations because of the subject matter, and most importantly because activities might not necessarily concern 'research', but include other participatory activities such as general educational and social activities instead [84].

CONCLUSION

The results of this study show that after the Athens Charter (1931), which is very important in the field of conservation and restoration, we do not see an international document on conservation and restoration for several years. This could be related to World War II because many countries in the world were involved in the war during this period That is, from 1939 to 1945, which was the war period, no documents were published And several years after World War II, international documents related to conservation and restoration were not published. In fact, there was no charter in the 1940s. The results of this research show that from 1930s to 1960s, more attention was paid to hard sciences and less attention was paid to soft sciences. The most important thing that has happened in the

relationship between soft and hard sciences is that since the 1990s, codes A and G have found a fixed trend, that is, A has an increasing trend and G has a decreasing trend. Such that in the last three decades, from 1990 to 2020, there has been a growing trend of attention to soft sciences in international documents, and the share of hard sciences in documents has continued to decline over time. If we do not take into account the years related to the Second World War and the post-war years; A noteworthy point from this research is that the share of soft sciences reached its highest level in 2010 and the share of hard sciences reached its lowest level. This upward trend towards soft sciences can be due to the increase in awareness of humanities and social sciences involved in conservation and restoration also received Inefficiency quite hard handling in restorative interventions. On the other hand, as mentioned, UNESCO's share in the ratification of international documents has increased significantly in the last decade, which in itself has had a significant impact on increasing the focus on soft sciences compared to hard sciences. UNESCO has also been more interested in the soft sciences than ICOMOS, so that in the years when UNESCO's role in the ratification of documents has expanded, the proportion of soft sciences has risen sharply. As stated, at the beginning, positivist approaches were dominant in conservation and restoration. Approaches that deal more with the physical dimension of historical works. On the one hand, after the Burra Charter, which was a change in conservation paradigms, postmodernist approaches prevailed, and on the other hand, cultural relativism was considered. Most of the international documents after 1999 emphasize people's participation and it is necessary to use participatory research methods. In fact, this research showed that soft sciences have been considered in international documents, and even in recent decades, this trend has been steadily increasing. To continue this research, it is suggested to examine the relationship between soft and hard sciences in conservation decisions in practice, as well as why this issue is examined, despite the fact that international documents have emphasized this issue; in practice it is less discussed.

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