

## **La construcción del derecho a la cultura. La apreciación del arte pictórico para las personas con discapacidad visual**

*The construction of the right to culture. The appreciation of pictorial art for the visually impaired*

*A construção do direito à cultura. A apreciação da arte pictórica para pessoas com deficiência visual*

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### **Resumen**

Las personas con discapacidad visual también tienen derecho a disfrutar de diversas manifestaciones artísticas, en este caso pictóricas, de manera inalienable. En México debe haber normas que regulen el acceso de discapacitados visuales a todas las actividades culturales que fomentan el desarrollo integral. Para ello fueron diseñadas propuestas hápticas y de audición, así como una investigación cualitativa donde se observó en el estudiante: a) el grado de habilidad para dibujar a partir de material auditivo y de material háptico; b) el nivel cultural, es decir, si conocía o no la imagen de la Mona Lisa, ya que de esa manera podía comprender mejor la descripción oral y, posteriormente, el material háptico del personaje representado; en este punto, los estudiantes escucharon la descripción, tocaron el cuadro y dibujaron sus experiencias; y c) el tipo de ceguera, un factor importante porque las personas ciegas adquiridas desarrollaron representaciones gráficas distintas de las de las personas ciegas congénitas. Por tanto, las líneas llevadas a cabo por las personas con ceguera congénita permiten concluir, desde los señalamientos de Arnheim, que los trazos provienen de las asociaciones establecidas con el tacto en movimiento. Por otra parte, varios de los participantes pudieron hacer cambios en la imagen trazada, aspecto que se hizo patente al comparar los dibujos realizados después de escuchar la descripción y aquellos realizados tras tocar el material háptico.

**Palabras clave:** normatividad, museos, tiempo libre, pintura, háptico, audición.

## **Abstract**

People with visual disabilities are the bearers of rights enjoyed by all people and are part of human rights as a guarantee of inalienability. The integration of people with disabilities into the enjoyment of various artistic manifestations such as the pictorial ones, is part of the rights of all people, understood as well as inherent in it. Currently, Mexican legislation establishes a series of actions that guarantee the accessibility of people with visual disabilities to all cultural activities that are an important part of the integral development of every human being. With the establishment of pertinent regulations to enable people with disabilities to access leisure time as part of leisure, haptic and hearing proposals were designed. From the process of a qualitative research was generated information that made it possible to obtain observations around a) The level of ability to draw each participant. The characterization of the image from the auditory material and the haptic material is emphasized; b) the degree of knowledge or cultural level, which is related to the fact that some participants knew the image of the original picture of the Mona Lisa; which allowed them to understand with greater ease and speed the oral description and, later, the haptic material of the person represented. They listened to the description, touched the picture and drew, representing meaningful experiences. c) the type of blindness, this was an important factor that made it possible to detail that the blind people acquired, developed graphic representations different from the blind people congenital. Therefore, the lines carried out by people with congenital blindness allow us to elucidate in this phase of tests, from Arnheim's point of view, that the strokes come from associations established from the touch in motion. On the other hand, it is important to mention that with the dynamics of work, the fact that several of the participants were able to carry out changes in the traced image was shown as a relevant fact, an aspect that became apparent when comparing the drawings developed after hearing the description and drawings made after touching the haptic material.

**Keywords:** normativity, museums, free time, painting, haptic, hearing.

## Resumo

As pessoas com deficiência visual também têm o direito de desfrutar de várias manifestações artísticas, neste caso pictóricas, de forma inalienável. No México deve haver regulamentos que regulam o acesso dos deficientes visuais a todas as atividades culturais que promovam o desenvolvimento integral. Para isso, foram elaboradas propostas de háptica e audição, bem como uma pesquisa qualitativa em que o aluno foi observado: a) o grau de habilidade para extrair material auditivo e material háptico; b) o nível cultural, ou seja, ele conhecia ou não a imagem da Mona Lisa, pois assim conseguiu entender melhor a descrição oral e, mais tarde, o material hábil do personagem representado; Neste ponto, os alunos ouviram a descrição, tocaram a pintura e desenharam suas experiências; e c) o tipo de cegueira, um fator importante porque pessoas cegas adquiriram representações gráficas desenvolvidas diferentes daquelas de pessoas congênitas cegas. Portanto, as linhas realizadas por pessoas com cegueira congênita nos permitem concluir, a partir das notas de Arnheim, que os traços provêm das associações estabelecidas com o toque em movimento. Por outro lado, vários participantes poderiam fazer mudanças na imagem rastreada, um aspecto que ficou claro ao comparar os desenhos feitos depois de ouvir a descrição e aqueles feitos depois de tocar o material háptico.

**Palavras-chave:** normatividade, museus, tempo livre, pintura, háptica, audição.

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## Introduction

People with visual disabilities have been largely relegated from social and cultural activities due to their condition, limiting their development and taking advantage of their free time. According to the Royal Spanish Academy, the term "right" means fair or legitimate; the faculty that the human being has to legitimately do what leads him to a better life. Likewise, it means the faculty to do or demand everything that the law or the authority establishes in our favor, or that the possessor of something allows. We all have an obligation to behave in certain ways in the social aspect. Finally, it also has to do with human rights, that is, the set of principles and norms that express an idea of justice and

order, which regulate human relations in every society and whose observance must be imposed coercively.

All people have rights in their interaction with other individuals -in equal, similar or totally different conditions- that they must exercise. The Mexican Political Constitution establishes in its Article 1, On Human Rights and its Guarantees, that:

In the United Mexican States, all persons shall enjoy the human rights recognized in this Constitution and in the international treaties to which the Mexican State is a party, as well as the guarantees for their protection, the exercise of which may not be restricted or suspended, except in the cases and under the conditions that this Constitution establishes. The norms relating to human rights shall be interpreted in accordance with this Constitution and with international treaties on the subject, always favoring people with the broadest protection. All authorities, within the scope of their powers, have the obligation to promote, respect, protect and guarantee human rights in accordance with the principles of universality, interdependence, indivisibility and progressivity. Consequently, the State must prevent, investigate, punish and repair violations of human rights in the terms established by law. (p. 1).

In the normative field, the Political Constitution of the United States of Mexico initiates its normativity with Article 1 that establishes rights and guarantees of Mexican citizens, where national and international recognition of them is evident, as well as human rights in the search for the authorities to be forced to promote, respect, protect and guarantee them. In addition, the State must prevent, investigate, punish and repair violations of the human rights of its fellow citizens. The foregoing is directly related to the objective of establishing the relevant regulations so that people with visual disabilities have access to culture and free time, and to generate a way to show pictorial works to people with said disability based on haptic knowledge and auditory, through guaranteed proposals of all the regulations available for that purpose. Mexican citizens, regardless of their condition, orientation or sex, are guaranteed their human rights from the moment they are born until their death; and the executive branch is responsible for managing the proposals by taking actions in the face

of general policies for the application of the laws. For Burgoa (2007), the right is established as follows:

The facts and social situations of multiple causality and teleology, collective or individual, are governed by the legal norm in a bilateral, imperative and coercive manner, and in "the guiding criterion, which constitutes the content of said norm, and is based on a varied and variable ideology that, in turn, is shaped by any of the aforementioned principles, postulates, "quereres" or logical judgments, which affect the fields corresponding to different sciences or disciplines of a generally cultural nature, such as the economy, sociology, philosophy or politics (p. 280).

Then the State is in charge of guaranteeing these rights? Since the State is the form of organization of a society to be able to function in the best possible way, this is plausible. The State complies with a common political organization in which government bodies are established to ensure the proper performance of the community's actions. The State also takes care of the validation of all the rights of each individual of the community given their nature of rational and self-aware beings; each person seeks happiness in a particular way through concrete goals and enjoy everything he craves regardless of his personality. According to Burgoa, the goal of the human being is to develop and act based on reason.

On the other hand, there is the knowledge and enjoyment of culture and free time; culture is, according to the Royal Spanish Academy, "a set of ways of life and customs, knowledge and degrees of artistic, scientific, industrial development in an era, social group, etc., while free time is understood as that of that every person has to carry out activities that generate satisfaction and that have nothing to do with work. Teleologically, the term culture is one of the highest aspirations of the human being for its development. The culture of an individual is part of his personality, that is, the set of conditions that determine his acquired habits as a result of frequent practices before various events. Does culture then determine the rights of people and the obligations of the State? Serrano and Vázquez (2014) mention

that the creation of new legal and political frameworks could occur, for example, in the Declaration and Program of Action of the Vienna Conference, since in its 69th point it recommended the implementation of a global program for assistance technical and financial support, in the process of strengthening the structures that contribute to the observance of human rights from within the United Nations. For this reason, among other actions, the Declaration established the creation of a system of indicators to review the progress of rights to culture. Rightly, in Mexico, human rights have been legally established and, as far as possible, they have been fully complied with. As a result, the General Directorate of Human Rights was created on February 13, 1989 and on June 6 of the same year, the National Human Rights Commission was created as a decentralized body by presidential decree.

In the Official Gazette of the Federation, dated September 13, 1999, said national body was constituted as a full institution in autonomy of management, and its name changed from the National Human Rights Commission to the National Commission for Human Rights . The universality of human rights gives the individual the legal certainty that their individual rights are stated in the Political Constitution of the United Mexican States as part of the regulations and regulations that the State proclaims for the members of the social context to which represents, will be respected and validated before diverse situations or facts; likewise, the Universal Declaration of Human Rights issued by the UN establishes, for example, in its Article 2 that:

Every person has the rights and freedoms proclaimed in this Declaration, without any distinction of race, color, sex, language, religion, political opinion or of any other nature, national or social origin, economic position, birth or any other condition.

In addition, no distinction shall be made based on the political, legal or international status of the country or territory whose jurisdiction depends on a person, whether it is an independent country, a territory under fiduciary administration, not self-governing or subject to any other sovereignty limitation (p.2).

Therefore, for Serrano and Vázquez (2014) "the universality of human rights can be considered a quality inherent to the individual, as well as fundamental, however, it is well known that these concepts are not validated in all individuals from different contexts social "(p.25). Human rights may not be applied in Mexico due to ethnic conditions related to economic solvency, or even disability. Serrano and Vázquez (2014) also point out that "Mexico, despite this and before the principles and obligations assumed by nations, seeks the application of the concept of universality by making the corresponding regulations valid and relying on four other principles-obligations based on the core of the right. "

Appealing to the concept of universality applied to human rights, we can point out a series of rights of common order such as those that integrate the social dynamics and life systems of a society, highlighting the economic, cultural, environmental, civil, etcetera, etc. so before the axiology can reflect on the role of human relationships in response to values and ways of valuing (both individual and group). Therefore, morality also seeks to recognize human dignity based on the fundamentals of human beings and their human rights: the idea of universality. In this regard, Serrano and Vázquez (2014) mention:

This principle must be understood and used from the concrete experience of people, in accordance with a specific time and space, in such a way that inclusion is promoted from reality itself (p. 25).

Based on the statements of these authors, the principle of universality has as its ultimate goal human dignity and as values freedom, equality, solidarity and peace, all of them inscribed in basic concepts of personal freedom, the right to health , freedom of expression, the right to housing, the right to vote, the right to education, and the right to personal integrity before a process as part of positive rights.

Likewise, indivisibility as a concept confers balance and stability to the legal commitment of the Mexican State and its citizens, with it all rights without distinction are in conditions of equality and a fair treatment is achieved. The model of the Universal Declaration of Human Rights considers holistically internationally recognized human rights as an indivisible structure, in which the value of each right is increased by the presence of others, that is, rights such as security social, those of adequate standards of living, work, cultural life and education, intimacy, freedom of movement, freedom of expression, among others,

are interrelated with the task of the human being in its context and environment; therefore, indivisibility as a principle must be present in a series of diverse treaties, as well as in the regulations derived from the observance of the institutions in charge of their management, generation and fulfillment, adapting the contents according to the different contexts. On the other hand, Serrano and Vázquez (2014) affirm: "There is no separation, categorization or hierarchy among human rights, and these should not be taken as isolated or separate elements, but as a whole".

This generates a phenomenon of interdependence between the various parties involved in situations specific to human relations, and from which the concepts of law, principle and obligation are born. In addition, the validation of the different rights is related to other individual rights, on the understanding that they are inherent guarantees as well as dependent rights, that is, if one disappears the other could be affected or modified, for example, the right to vote and the right to be voted within the framework of freedom of expression.

At the Vienna Conference of the UN (1993), section 5 states:

All human rights are universal, indivisible and interdependent and interrelated. The international community must treat human rights globally, fairly and equitably, and give everyone the same weight. The importance of national and regional particularities, as well as of the various historical, cultural and religious patrimonies must be taken into account, but States have a duty, whatever their political, economic and cultural systems, to promote and protect all rights human rights and fundamental freedoms (p. 19).

It is then the obligation of the States to design public policies more in line with the needs of the individuals they represent, based on cultural diversity and heritage, given the regionalisms that are a living part of the territories and the different communities and, therefore, lifestyles where, despite their characteristics, the quality of life is a common goal for all of them.

The inalienability as a quality of what is inalienable, that is to say, of what can not be sold, ceded or legally transmitted, is a principle within the matter of human rights that deals with the basic rights of the human being: rights to life, to freedom, to equality, to justice, to expression, to free transit, for example. The inalienability is immanent to the human being and thus it must be conceived from the moment of the conception of a new being, in the exercise of the parents about their responsibility in the gestation of the being. The inalienability is also and decisively imprescriptible, basic principle of human rights; therefore, these principles will not lose validity or validity. The absolute character determines, as another of the basic principles of Human Rights, aspects such as the following:

- Constitute the fundamental ethical-juridical dimension, constitute the "most important" and radical normative scope; hence, they constitute the most "urgent, demanding and intransigent" demands.
- They can not be justifiably infringed and have to be satisfied without any exception.
- They confer an immediate and direct power over the good of the personality in question, and are opposable to all (*erga omnes*).
- They have prevalence in the face of those political decisions and legal norms that, although formally legitimate, do not preserve the values included in the Constitution.
- They are original or innate. They are acquired by being a person, without the need for concurrence of any other circumstance.
- They are extra assets. This characteristic means that they can not be reduced to a mere economic valuation; although they may have as object goods or realities that can be valued economically, even though they may have economic repercussions or their injury may be repaired, at least in part through a pecuniary indemnity. The fundamental properties of Human Rights (Characteristics of human rights, 2011) are:

Among the general obligations of the State is: to respect, protect, guarantee and promote the human rights of each and every one of the individuals worldwide.

With respect to the rights of all people to have access to culture and the enjoyment of art as part of leisure, the Mexican State validated inclusive projects for several years whose objective was to bring people with disabilities to cultural and artistic activities . Therefore, for people with visual disabilities to appreciate pictorial art, it is necessary to specify the way in which two-dimensional images of painting are taken from the sensory perception of people with visual disabilities. To that end, a series of regulations was created that have long opened the possibility of developing programs and projects that are inclusive in all areas of the social context. One of those that stands out for its content is the Optional Protocol to the Convention on the Rights of Persons with Disabilities, whose application in Mexico is overseen by the Commission on Human Rights, and in which recommendations of importance for the parties involved in any event that affects their human rights. Likewise, organizations such as the World Program of Action for Persons with Disabilities (PAM), the Federal Law to Prevent and Eliminate Discrimination, the Uniform Rules on Equal Opportunities for Persons with Disabilities of the UN or models such as the medical model, of integration, social and human rights, specify norms and generate paradigms about disability as a social concept for their understanding within the context. The Uniform Rules on the Equalization of Opportunities for Persons with Disabilities, in its Article 10 on Culture, establishes that States must observe that all persons with disabilities are integrated and participate in cultural activities in conditions of equality:

The states will ensure that people with disabilities have the opportunity to use their creative, artistic and intellectual capacity, not only for their own benefit, but also to enrich their community, both in urban and rural areas. Examples of such activities are dance, music, literature, theater, plastic arts, painting and sculpture. In developing countries, particular emphasis will be placed on traditional and contemporary art forms, such as puppet theater, declamation and oral narration (p. 20).

What is the general objective and the particular objectives of a proposal of haptic and audible materials? Determine the conditions that allow to take pictorial works to people with visual disabilities from the design of three-dimensional plastic work based on the principles of haptic and auditory perception, as well as existing regulations for people with visual disabilities and their approach to culture and art. The above is broken down into

particularities such as determining the applicability of the principles of haptic and auditory perception to bring two-dimensional painting to people with visual impairment, and contributing to the design of a plastic work proposal for people with visual disabilities, based on the principles of haptic and auditory perception and normativity.

### **Right to culture**

The premises that promote human rights are considered to be of great value when they are established as obligations of the States as well as of a whole series of organizations, organizations and individuals. To this end, the Convention on the Rights of Persons with Disabilities, which in its Optional Protocol establishes in its Article 30 of Participation in cultural life, recreational activities, recreation and sport, recognition of States to the right that have people with disabilities on equal terms, to participate in cultural life, to the letter quote:

- a. Have access to cultural material in accessible formats.
- b. Have access to television programs, movies, theater and other cultural activities in accessible formats.
- c. Have access to places where cultural performances or services are offered such as theaters, museums, cinemas, libraries and tourist services and, as far as possible, to monuments and places of national cultural importance (p. 31).

These three points of the Convention on the Rights of Persons with Disabilities show aspects such as access to cultural materials through particular technologies and tools, as well as access to places, monuments, enclosures, spaces and scenarios that allow visits to be adapted. people with disabilities and visual disabilities. In this sense, Gorbeña (1997) points out that the concept of culture was adopted by 130 States within the UNESCO International Conference on Cultural Policies. For him the culture

A set of distinctive signs, spiritual and material, intellectual and emotional, that characterize a society or a social group. Encompasses arts and letters, ways of life, the fundamental rights of human beings, value systems, traditions and beliefs (p. 26).

What is culture? A set of material, as well as spiritual elements that allude to aspects related to what the human being feels and thinks about their place of origin, their habitat and community and that have a social focus. Tangible and intangible art objects, represented by painting, sculpture, music or poetry, for example, are part of the lifestyle of people, and importantly also of the interactions between individuals starting from their living conditions.

Culture is established as a set of meanings in a collective production, which are manufactured and transmitted for generations. The family is a very important link in the process of transmitting values. Parents transmit their values and social concepts to their children whose meanings are key elements that unify all the members. Likewise, institutions created within the social context play an important role in transmitting values, customs and meanings of the entire community; An example is schools and museums, which offer a wide range of possibilities in the teaching and learning of multiple aspects related to culture.

For Cacho (1995), education is a path that initiates a transformation in the culture of the inhabitants of a certain place, developing the productive capacities and values of all the people who inhabit it, including people with a disability. Basic institutions such as the family or schools, although different, carry out educational processes from which they transmit a series of knowledge and values that integrate the culture of the individuals of a certain social context, giving way to the formation of an individual identity and collective.

The second point of Article 30 of the Convention on the Rights of Persons with Disabilities: Of participation in the cultural life of people with disabilities, the letter says the following:

The States Parties shall take appropriate measures to enable persons with disabilities to develop and use their creative, artistic and intellectual potential, not only for their own benefit but also for the enrichment of society (p.31).

The designation of the Convention on the Rights of Persons with Disabilities, emphasizes the direct and convincing participation that States must take a series of measures on the development of the creative potential of all persons with disabilities. To support the above, a proposal for the development of haptic-audible material for the museums was carried out, for which the qualitative method of participant observation was implemented, with which new concepts and proposals supported by the data obtained were established. with the participants.

What then are the contributions generated by an artistic project with which people with disabilities interact? Initially it is deduced that the discovery of the artistic potential of a person with a disability is carried out, that is to say, that she herself as well as the people close to her recognize a wealth of skills of the individual to develop some type of artistic expression. On the other hand, the constant practice of some type of artistic expression generates significant experiences that lead the person to the domain of the same, however, it is necessary to educate the person in this field and, in general, in others that interact with the artistic area to complement and interrelate knowledge, understanding education as a cluster of concepts that give way to the personality of the individual, that is, the set of qualities and traits that shape the way of being of each person and make it different to the others.

All people with disabilities can develop -as any other person-, artistic and other learning processes with great precision, quality and creativity and before various proposals of a personal nature. These learning and development processes require specific guidance from professors and / or instructors who master the various subjects in the practices, in fields of work such as those that schools, academies or workshops can provide. All this has repercussions not only on individual benefits, but also on social benefits thanks to the work carried out by both parties.

Paragraph b) of Article 24 of Education of the Convention on the Rights of Persons with Disabilities speaks of the recognition of the right to education of persons with disabilities by States Parties. Its objective is to ensure an inclusive education system and lifelong learning:

b) Maximize the personality, talents and creativity of people with disabilities, as well as their mental and physical abilities (p. 25).

There is a link between the artistic culture and education in general, since from both people develop and complement talents, they also develop skills and generate creative proposals, therefore, a learning associated not only with art is generated, but also to the integral educational process. Thus, the benefits for people are notorious because they increase their personality for personal and community benefit.

In this regard, Consuegra (1997) points out that knowing the artistic manifestations is of the utmost importance since it influences the formation of any individual including people with disabilities, as well as being a reference source for the daily life of a social group. .

According to the author Pol (1995):

A museum piece can have several readings, by itself or in different combinations, and allow achieving different goals that do not have to coincide with the expository motifs of the curators of the museum; that is why it is necessary to call the attention of the student and prepare it so that it can appreciate and recognize, both the technical and formal aspects of the work of art as well as the historical and social context of its production and interpretation, training that will allow it to better assimilate the subsequent data (p. 3).

The approach of a person to art in museums allows him to appreciate and recognize the characteristic aspects of the artistic works with which he comes in contact; with this he identifies his immediate environment and develops his own personality as part of his right to leisure, which translates into a better quality of life. With regard to the third point of this Article 30 of the Convention on the Rights of Persons with Disabilities, of participation in the cultural life of persons with disabilities, the following is cited:

States Parties shall take all appropriate measures, in accordance with international law, to ensure that intellectual property rights protection laws do not constitute an excessive or discriminatory barrier to the access of persons with disabilities to cultural materials. (p. 31).

This third Article points out the participation of governments to take the necessary measures in terms of regulations on copyright. The basic objective of this point is to generate warnings to the corresponding authorities, that any registration in the copyright does not become an impediment so that people with disabilities can access different artistic manifestations, that is, that intellectual property does not be an obstacle to the creation of materials that facilitate the accessibility to art by persons with disabilities.

Therefore, it is essential to create regulations to avoid vicissitudes for this group of people, who like any other social group, have the right to access art within any field to develop or appreciate it. Thus, the possibility of allowing people with disabilities to access places where they interact with different manifestations of culture is created, and it should be understood that not only is it possible to access the facilities or areas assigned for the generation of events related to the culture of art, but also is a progression in the restructuring of the entire infrastructure in general of the social context in favor of disability as a condition of the human being, from the medical and social model. For this, museums -for example-, are the most representative to promote the artistic and cultural manifestations of the human being, by acquiring, conserving, studying and exhibiting objects of various kinds as part of the heritage of a community.

## **Materials and method**

Based on the above, the development of haptic and hearing material for people with visual disabilities in museums was proposed, this was developed through the participant observation method as a consequence of the support of the existing regulations. For this, a series of observations were made with the participants during four work stages, in which the materials were complemented with others of type of hearing reinforcing the conceptualization of the haptics. Said stages were: a) the oral description and graphic representation, the haptic recognition and the graphic representation on the part of the participant; b) the development of work models based on the representations in the previous

methodological phase. Here, sheets were generated from themes proposed by the results obtained; c) The development of Final Models: the graphic haptic sheet and the listening material. A new model was developed from 9 aspects of the image and d) application of the latest modifications to the materials. In these the participants were: different participants with variations of age, sex, type of blindness and absence of it (normal male and female adult participants with acquired and congenital blindness and normovisuales female and male children with acquired blindness and congenital) What was obtained? 1. Obtaining data through the oral description carried out of the character represented in the three-dimensional haptic material, and its subsequent two-dimensional representation (graphic), and 2. Obtaining data with the movements of the hands of the participants, apprehending essential features of the three-dimensional material, and its subsequent graphic representation. In this regard, Rosa, Huertas and Simon (1993) point out that people with visual disabilities use common codes as represented by oral language and that through basic coding processes perform an analysis and identification by means of words known as units of speech. meaning. Similarly, Millar (1997) states that they function as a way to conceptualize to a large extent the facts of the environment.

In this research process, based on the normativity of the right of access to culture and free time, a particular case of pictorial art, a second methodological phase was carried out, in which the following audible haptic models were elaborated; The models to be touched were made from the drawings made by the participants. How were the images obtained for them? Initially all the drawings made by each participant were digitized, analyzing the characteristics of the strokes from the type of blindness of each participant, with the understanding that the participants with acquired blindness would have residual information of visual type, generating images from this type of perception. In the participation of both late and congenital blind people, an exploded view of each drawing was carried out in its characteristic parts; which allowed analyzing the most representative elements of each image. This also made it possible to reinterpret and then generate the new materials. It was notorious that the perceptual processes change from one type of blindness to another given the differences of representationality in each case. In the third phase, the restructuring of the material was given as a function of the previous observations, defining that the audible material was integrated by a descriptive text and period music. To it, Millar

(1997) mentions that the text detailed the antecedents of the work and characteristics of the same, while the music generated in the user an approach with the historical moment; In relation to the above, haptic recognition is linked to the information provided through what is said and heard, that is, active touch will confirm or discard from what has been heard. The validation of the materials and methodological phases, occurred with the interaction of the same with participants with acquired blindness, congenital blindness and visual norms of different age and sex ranges, observing that the understanding and understanding of the represented image was correct, make an association of what was heard and played, with the synthesis of the forms that are part of the environment and that have been identified at some time determined by each subject or participant, regardless of their visual condition.

## **Results and Discussion**

In the work dynamics, observations of the auditory and haptic perception processes of the image represented in the developed three-dimensional material were carried out, as well as the personal experiences related to art and, in particular, to painting. Participants were people with visual impairment, members of the International Committee for the Blind of Mexico City, given their personal characteristics such as age, cultural and knowledge level, type of blindness and life experiences, who collaborated positively.

A person with acquired blindness keeps remnants of images of what he perceived through the eyesight and until the moment of losing it. These images disappear and lose clarity and detail with the passage of time from the moment that this sense is lost. However, memory manages to associate real objects with those with which blind people have contact to be able to recognize them in their environment. As part of his research, Hatwell (2003, p.3) refers to the fact that touch has the property of providing information about the qualities or physical characteristics of objects: shape, size, distance, texture, for example, and also of establish the dimension of space. The color, as a constituent element of the objects that is perceived visually through the light; its study in relation to people with visual disabilities is part of another line of research, given that various proposals have been generated in which color is being involved with blindness, touch and various haptic and hearing materials.

Thanks to a process of conceptualization of the image in the brain, people with visual disabilities conceived the image in a graphic way of the represented character. The process of auditory and haptic perception then generated information that made it possible for the participants to obtain two different graphic proposals linked with aspects such as: 1. the drawing ability level of each participant, in which some participants with acquired blindness were concerned because their stroke it was not correct, that is, it was not well seen by the normovisuales people due to their lack of skill and vision in support of the contours. It was remarkable how the participants characterized the image from the auditory material and, on the other hand, the haptic material, that is, through the auditory material (description of the Mona Lisa character), the participants obtained certain information that later was reflected in the support by means of the pencil. This is related to the idea that from the auditory sense it is possible to remember something, someone or some event, and that it is possible to access their knowledge for the first time. Then, for people with visual disabilities, verbal descriptions are very important because they particularize aspects and characteristics of the elements described. For Huertas, Ochaíta and Espinosa (1993), people with visual impairment have in descriptions one of the most important procedures to know the spatial representations of the subjects, which by themselves can be considered as complicated to understand for someone who lacks the sense of sight. Another aspect, 2, is the level of knowledge or cultural level, related to the fact that some participants already knew the image of the original picture of the Mona Lisa, which allowed them to understand the oral description more easily and quickly. subsequently, the haptic material of the character represented. For participants who were interested in painting and drawing, the work dynamics were more significant in terms of enjoyment.

Listening to the description, touching the picture and drawing were significant experiences. This served not only to obtain data during the process of observation, but also to relate it to the right to leisure of every person.

3. The type of blindness was an important factor that allowed us to detail that blind people acquired developed graphic representations different from those of blind congenital persons. The strokes made are composed of elements with shapes and details typical of images generated in the brain through the sense of sight. Although the traces of participants

with acquired blindness are badly linked, the composition and details are related to those of a visual image.

The representations of the participants with acquired blindness can be established as a result of past experiences where sight played a very important role as perceptive sense and input channel for the information generated in the immediate environment, remaining mental remnants of visual type, without omitting the information that comes from the senses of touch and hearing. Tactile recognition then depends on the information provided through the mouth-ear binomial (listening to something to recognize it haptically) (Millar, 1997, p.297, Consuegra, 2002, p.24). On the other hand, traces of people with congenital blindness were represented with features different from those of participants with acquired blindness, being much more synthetic in both its form and its composition. His drawings were made in the way children trace what they see or what they think. What is the similarity? Arnheim (2006) states that children's drawings have as their object the general, that is, the simple and global structural features. It also notes the following:

In other words, if I want to represent the roundness of an object, in this case a head, I can not support myself in any way that really comes to me, but I have to discover or invent that which satisfactorily embodies the visual generality of "Roundness" within a world of tangible things (p. 179).

The lines drawn by people with congenital blindness allow to elucidate in this phase of tests, from Arnheim's signals, that the strokes come from the associations established from touch in movement, both with real objects, as well as with haptic contact with heads of people close to the congenital blind, for example, with the concept of roundness. Through these associations, the blind congenital participant developed drawings from basic elements generated by himself, not from elements already established and recognized by all. The child with congenital blindness then conceives the structures of the objects he represents from experiences generated from touch, hearing and other senses, which provide basic information to "create" everything around him. Likewise, they influence particular experiences of each of them in their immediate environment. On the other hand, the normovisual child, conceives the general basic trace in the mind by the input of information

through the sense of sight mainly. For example, for some congenitally blind people the head in a person represented in a graphic manner should have a circular shape, while for other people it should have an ovoidal shape. This characterization given to the character traced could be related to other factors such as: the type of physical and psychic environment, which revolve around the individual and with which mental files are created with which they establish representational developments (from graphic manifestations).

On the other hand, several participants were able to carry out changes in the image drawn on the work support that was a cardboard, an aspect that became clear when making a comparison of the drawings developed after listening to the description and the drawings made after touching the haptic material. For example, some people developed a better graphic representation work in their drawings after the haptic recognition of the three-dimensional material.

Several participants with blindness did not know the three-dimensional image of the Mona Lisa, so it was very helpful for them to reproduce the reproduction and then make a more appropriate representation in their second drawing; On the other hand, for participants who already had knowledge of the original painting, the haptic material served to mentally recreate the image of the Mona Lisa and personify it. In both cases, the second graphic representation in several of the participants was more detailed; in others it remained without noticeable changes. Therefore, it is pointed out that a) The participants made mental use of the information generated from the auditory perception to represent the image described orally. As the first activity of the work dynamics, the participants developed their graphic representations from an oral description of the character represented in the material, establishing representative elements. In this first proposal, the personal experiences also set a pattern for the participant to generate in the mind, through what has been heard, a composition of what is plotted on the work support. This resulted in different proposals of the image of the Mona Lisa that although similar were characterized by not having a misplacement and / or having added elements that were not present in the original work; b) The participants conceptualized much better the image represented from the information that was generated from the haptic perception, completing it with the obtained from the auditory perception; for that reason, in the second graphic representation, the participants generated graphic proposals more attached to the image of the original work, starting from more exact lines and related both to the form and the position with respect to

the composition in general of the whole image ; c) The participants gave the auditory and haptic information the same value, due to this the representation was not modified in a noticeable way, therefore, in the traces of some participants there were no noticeable changes in the composition of the image represented.

## **Conclusions**

The observations made with the participants with congenital blindness qualitatively favored the proposal, since it was possible to verify the way they touched the objects, that is, the way they carried out the haptic recognition with the movement of the fingers of the hands. The way in which the images developed by the participants with the material for drawing was represented was also verified; In addition, the intervention of the haptic and audible material as a binomial offered complete information about the subject of dynamics.

With the information obtained in the observations and results various considerations are generated for the proposal of the appreciation of pictorial art by people with visual disabilities with haptic and audible materials; they are between them:

"That the representation of the image acquires its maximum possible abstraction". This is a characteristic of young children to represent everything they draw, that is, they make a synthesis of the image from the fundamental elements of it, that is, its basic forms. They also make use of basic geometric shapes and irregular shapes, which allows them to easily understand what is represented.

The basic forms that the normovisuales people know are modified in the people with congenital visual incapacity because they lack visual memory, reason why the character of similarity of the objects is lost in the majority of the cases. However, congenital blind people generate these images more easily than blind people who have acquired visual memory, to a greater or lesser degree, according to the time they have without the sense of sight. Therefore, the levels of abstraction that people use in graphic representations show that the interpretation of reality is made from the synthesis of objects; In this way, the meanings of the object are transmitted and that are proper to it from the strokes as a minimal expression of reality, configuring what can not be seen.

In the process of sensation-perception in a person with visual impairment, only some senses intervene, so that the informative content is incomplete, establishing generalities of what is perceived, that is, temporary resources considered as a "summary" of what is perceived. captured by the senses or the synthesis of the images generated in the mind of that which is only touched and can not be seen.

"That the representation of the image is carried out from strokes made with simple lines". The line is one of the main elements in the configuration of the concepts, it helps to organize the space in the two-dimensional representations; the lines delimit the contours. The "need" to generate representations with a high degree of abstraction for people with visual disabilities is important, since they can more easily conceive the images represented. Simple contours can be understood through touch in movement, where the fingertips function as channels of information input of what is touched. In the case of representations worked through raised lines in relief materials for users with visual impairment, the lines provide textures, which through touch generate mental concepts of images represented in haptic materials. Simple elements such as lines allow to conceptualize the basic shapes of geometric figures, for example, the circle, the square and the triangle, or more elaborate and complex shapes that are integrated by many elements; The creation of many of the images is related to the movement, direction or interaction of the lines, without requiring any other type of elements. Based on research carried out, it is understood that the sliding of a single finger of the hand on the surface of a raised line is not an adequate information channel to assimilate the information that may be useful for the visually impaired individual at the moment of touch something to recognize it and conceptualize it. One of the reasons is that the data that the brain receives through the skin, muscles and tendons are not so significant since there is no relationship with frames of reference centered on the axis of the body. Thus, when performing a haptic exploration with the fingers of both hands, the individual establishes an alignment with the symmetrical axis of the body, obtaining similar results as with vision. It must be assumed then that both hemispheres of the brain come into contact with the objects that are touched, carrying out a complement and association of the information obtained for their interpretation.

"That the representation of the image is carried out from certain formats". For the design of haptic materials should be considered the movement of the hands across the length and width of the material shown to users with visual impairment. Blind people, when they come into contact with embossed sheets, begin a journey with which they first recognize the material, to later establish the details of the elements that make it up. However, when formats are presented that do not fit the palms of the user's hands, they represent options that make it difficult to understand the image. Examples of this are formats that are too small or formats that are too large, as they do not allow the elements represented to be determined explicitly. Therefore, in the manufacture of haptic materials, the pertinent thing is to work with formats with a size of approximately 21.59 x 27.94 cm, since it is one of the most comfortable sizes to manipulate the materials. By covering all the material, users establish the contours of both the support and the image represented, determining the space of the "background" and the image itself, in addition to conceiving the notion of the size of the material.

"That the representation of the image is carried out from geometric shapes". The use of simple lines in the generation of images for people with blindness makes it much easier to conceptualize what is represented, for this the implementation of recognized basic forms such as triangle, square and circle establishes a link with concepts as, for example, those of a circle, which could mean the haptic representation of a ball or a round fruit; a triangle could be interpreted as a piece of cheese or a nose, and a square would give the idea of a computer key or a screen. The meanings of these concepts can vary both for blind people who have been acquired and for blind congenital persons, whose referents are different and are based on their life experiences. The basic figures represent for human beings the most common forms that are around them, and that in a certain way "include" variants, but without neglecting the basic figure from which they come.

In the research proposal developed from three-dimensional materials or haptic materials, a second support element was implemented, which was the audio description, which complemented the understanding of the image represented. For the normovisuales people, sight as a priority sense is reinforced by the other senses, giving them the possibility of confirming everything they capture through the eyes, while for the visually impaired the sense of touch works as a priority supported by the ear, with which they recognize

everything that is around the body. Given the importance of hearing for the human body by its perception of sounds and noises to respond to stimuli, blind people rely on it to orient themselves in their environment and react concretely. Therefore, the development of an audio description that supports the haptic recognition of the material in relief was implemented, providing another element for the knowledge of the image developed in said material; Through it, the participant-user is introduced to a more detailed context of the represented image. These audio descriptions are integrated by elements such as the voice, which describes the theme, and integrates music, which refers to a represented historical moment. The audio descriptions provide valuable information related to haptic materials, for example, descriptive data, dates, authors, techniques, materials, places, work processes, et cetera. All this information is received through a guide or accompanying person during a tour of a museum or gallery room, in addition to Braille certificates. From the above, the descriptive audio material was generated with the synthesis of various texts.

The text of the description was written as a text whose lexicon and was more attached to the data of the author of the book used, data indicated in the vocabulary of the Renaissance and art. In the first test carried out within the work activities of the methodological part of the investigation, confusion and fatigue were generated when listening to the audio description by the children participants, since the lexicon seemed complicated to them. This situation worked in an inverse way in the adults, since most of them many of the words mentioned by the audio description managed to locate them in a context and in concepts used during the period of the Italian Renaissance. The audible model was generated taking into account important aspects such as the volume of the text implemented in the audio, the content of the audio, the coherence of the information, the musicalization, as well as the voice of the person who narrates, so that the audio could be understood by the participants. Then, a second audio was elaborated in order to minimize the fatigue of the participants describing the most important part of the work. Some of the opinions of the participants who worked on the dynamics of this audio description proposal were the following:

Participant of 39 years and who is congenitally blind indicated about the graphic haptic sheet and the audio that "as I listened to the audio I started from the beginning, I suppose that the bottom was his hands and I related it. It is a complement to the head. The audio did

help me, clarified some things ... "Another 20-year-old participant with acquired blindness established both the film and the audio that" helped me place my hands on the belly and hair of the Mona Lisa ". Another 65-year-old participant with acquired blindness said that "audio did work, although it is a little difficult to identify it, you can perceive that it is a person, with head, hair, but it is difficult with respect to the mental referent. Very good sheet and audio work ". The younger participants (children) mentioned the following: 8-year-old girl with congenital blindness said that "the recording is understandable, it helped me, I understood what the Mona Lisa was". A 10-year-old boy with congenital blindness noted the two materials: "the audio helped me and it's very good".

Regarding the binomial sheet and audio, the audible material offered details about the shapes of the image represented. At the same time, particularities of the image were presented regarding the length, the distance and the positioning of the forms as part of the plane of representation; In this sense, all the participants felt that the audio served as an immediate reference to form a more correct idea of the image they played, as well as to know the character's own data and the context of the work represented.

In the process of applying the work dynamics, a control group participated. One of the participants, 22, commented on the relationship between the sheet and the audio: "Works the sheet if you know the image; the audio seems good to me in the descriptive and the context of the work; yes, the audio worked because it describes the portrait, without audio I do not identify it. There is a relationship between what I hear and play. " Another of the participants in the 24-year-old control group commented on the dynamics: "Yes, the sheet was used to identify a human figure. Good audio, it did not bore, I did not disconnect, the story made me "create" what was in the picture (in the mind); Yes, the audio helped me to identify the figure of the woman, identify her face, her hair ... yes, it's the Mona Lisa, but in small".

A 20-year-old participant noted: "The sheet alone did not help me; the audio did help me to know, it is well done, according to the audio I imagine what I play, the language is understandable, good duration. I had an audio-film relationship. " Therefore, from the results with the control group in their interaction with the haptic and audible materials, the comments were that the combination of both was successful, as it generated detailed

information through the senses of touch and hearing. In this way new audio material was proposed, modifying the script and with the characteristic of having a much shorter duration, that is, the way of presenting it and narrating it for the children was modified. Some of the opinions of these were the following:

Five-year-old girl with acquired blindness opined about the binomial audio-film: "I liked the film by the hands and the loose and separated arms. The audio was very beautiful because of the narration of the man who took the painting, and the lady who was in the painting was painting it and her right hand was on the left and she was sitting on a chair. The music of the audio was very beautiful. "

Seven-year-old girl with congenital blindness, said: "I saw that I was a lady ... I saw hands or feet ... by the fingers; I touched his chest, his face, eyes, nose and mouth ... he has big hair and a head, it's an oval. I liked the music and it helped me because I saw a woman. "

A 13-year-old boy with congenital blindness commented on the audio and the film: "It's a woman ... I identify her fingers by her hand shape: she has eyes, head, happy mouth, body, arms, hair, long hair ... she does not have eyebrows, has crossed hands and a shirt. The plate is beautiful, because it feels like a woman; I liked the audio because he told me about the woman ... the audio helped me because you can see her fingers, eyes and hair ". These opinions resulted in the film, together with the audio support, helping the adult participants and children to conceptualize the represented image. All the details of the sheet were related to the description of the audio, so the audio descriptive material seemed significant.

The interrelation between the senses of touch and hearing is very important, since between them they help to identify objects.



Girl (blind acquired) participant in the tests of the materials



Child (normovisual) participant in the tests of the materials

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