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The chapter, starting from the new social condition inspired by the learning society, introduces issues and questions about how designers are dealing with the need to promote an effective experience of interiors. Representing culture and human heritage in the digital age is the contemporary challenge for designers that are figuring out interiors for community centers, like a museum or a library or the new hybrid spaces designed as urban interiors.

Drawing as experience makes possible to achieve multiple forms of representation. Computer graphics and digital imaging are changing the relations between designers, users, environment, physical and virtual public space, cultural places, educational contents, archives, libraries and museum collections. Participation, interaction, and sharing of information mediated by users and synthesized by means of drawing, rendering, mapping, and modeling, should also lead to innovative solutions for environments wellbeing, safety, and ergonomics, and ensure wider access to high-quality cultural contents.

Case studies and best practices introduce critical issues to face the challenges of capturing and designing a physical space or envisioning a cultural space that is set up with innovative ICT technologies including a process of citizen participation in decision making. 3D data, archives, projection, modeling, sensors, light, digital representation, user interaction, responsive surfaces need multidisciplinary methodologies encompassing several topics: places for culture, digital heritage, access to culture and education, design of urban environments and interiors.

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ENVISIONING THE LEARNING PROCESS. OLD CONCEPTS, NEW PARADIGMS

The ancient Greek term *paideia* describes, in the modern conception, the process of formation of the individual who, through education, acquires the necessary tools for participation in the social community; it is synonymous with human formation, that is, the subjective path that is considered culture in the highest and most personal sense within a broader cultural notion. *Paideia* is therefore not so much a pedagogical process of human education and training as a means for a training goal, but it represents an ideal of moral, cultural and civil balance to which man must strive which can be described as the very target of education.

The disciplines of drawing, through the ability to transform ideas and concepts into images, models or artifacts, triggers the process of intellectual knowledge. Such content, acquired through study, reading, experience, influence of the environment and reworked in a subjective and autonomous way become a constitutive element of the personality, contributing to enrich the spirit, to develop or improve individual faculties, especially the capacity for judgment.

From Plato and Isocrates to late Hellenism the model of *paideia* has changed, becoming at first exclusive and then belonging to the civil world, partly the result of collective knowledge and partly of subjective elaborations; it can be said that it is always associated with a continuous, evolutionary, adaptive process with respect to society and clothes but also of appropriation of cultural products which places a slow and inevitable confrontation activity on man so that it can be realized as an individual with awareness and inclusive capacity with respect to the social group to which it belongs and possibly, on a greater level, actively exercise intellectual faculties.

The concept is extremely topical where we talk about policies in the field of adult learning and vocational training as a range of formal and informal learning activities, both general and vocational, undertaken by adults after leaving initial education and training rather than of education and training opportunities for all; "Individuals pursue adult learning for a variety of reasons: to enhance their employment prospects, to develop personally or professionally and to obtain transferrable skills, such as critical thinking. Adult learning also contributes to improving social cohesion and promotes active citizenship" (European Commission, 2000).

Donald Schön's worked on "organizational learning and reflective practice" exploring the nature of learning systems and the meaning of learning in changing societies.

His studies has helped to define debates around the so called and contemporary "*learning society*" as expression of a new human condition with knowledge as a new form of capital and experiential design as a new form of economy. In this renewed social context, the role of the designer who designs or transforms interiors requires a visionary and imaginative force that must translate the cultural dimension of the project into formal expression but also ensure a functional and environmental character that is nowadays integrated by digital technologies (Smith, 2000).

The chapter, starting from the new social condition inspired by the learning society, introduces issues and questions about the future scenario of cultural engagement and the strategy to deliver habits and products that can empower and train the active citizen in the future. The change in the attitude of designers, the need to design and promote an effective experience of interiors is promoting the integration of interactive environments for the fruition of cultural heritage and a new concept for creating space for the community and the civic empowerment. Representing culture and human heritage in the digital age is the contemporary challenge for designers that are figuring out interiors for community centers, like a museum or a library or the new hybrid spaces designed as urban interiors. The educational process is outlined as a series of significant stimuli that reach the individual in his cognitive and spatial context and that must be addressed and coordinated on the natural social level (community, family, etc.) and on the educational side from school to places of culture, imagined not only as formal areas but also as environments for continuous learning and social cohesion.

The European Commission's *Memorandum on Lifelong Learning* (2000) defines lifelong learning as an essential policy for the development of citizenship, social cohesion and employment. Increasingly, individuals must rely on continuous professional development to remain competitive on the labor market. "A focus on adult learning is, therefore, vital for Europe to overcome economic challenges it is currently facing, as well respond to the demand for new skills and sustained productivity in an increasingly digitalized world economy" (European Commission, 2000).

The Communication from the Commission *Making the European Area of Lifelong Learning a Reality* (2001) introduces a new definition of the LLL: "all learning activity undertaken throughout life, with the aim of improving knowledge, skills and competencies within a personal, civic, social and/ or employment-related perspective" (European Commission, 2001). It gives a new dimension to lifelong learning activity undertaken in formal, non-formal as well and informal learning settings. Furthermore, the emphasis is made on the social inclusion and cohesion, personal fulfilment and individual needs, active citizenship and adaptability to the changing learning and work environments. Lifelong learning promotes increased investment in education and training, acquisition of the basic skills (math, languages, digital literacy, etc), and more opportunities for blended and flexible forms of learning (Gvaramadze, 2007).

The new formula encompassing the issues the changing societies are dealing with are well addressing by the 'Key Competences for Lifelong Learning – A European Reference Framework' adopted by the European Commission; among them *Digital competence, Learning to learn, Interpersonal, intercultural and social competences and civic competence, Entrepreneurship* and *Cultural expression* (European Commission, 2018). The framework is promoting, at different level, several actions and tools supporting active citizenship, social cohesion and employability.

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Fig. 1 - Sensitive City, Shanghai, Italian Pavillion at the EXPO 2010 which had Better City, Better Life as its theme. The spectators, not more simple visitors, touch the images that live through the screens to hear their voice. The cities reveal themselves as a world to be questioned, a paradoxical (and playful and poetic) book to browse through and from which to draw the fragments of memory without mediation. Picture source: Studio Azzurro.

group, has created the regulatory framework that today allows us to map the episodes of humanity's development. The *Convention* therefore refers to expressions, manifestations, representations, symbolic elements and therefore requires a specific narrative, descriptive and documentation approach, providing for appropriate and often unconventional forms of recognition and transmission.

This approach slowly manifested itself following the release of the *European Landscape Convention* in 2000 where State Parties are "Aware that the landscape contributes to the formation of local cultures and that it is a basic component of the European natural and cultural heritage, contributing to human well-being and consolidation of the European identity". The Convention was written "Wishing to respond to the public's wish to enjoy high quality landscapes and to play an active part in the development of landscapes; believing that the landscape is a key element of individual and social well-being and that its protection, management and planning entail rights and responsibilities for everyone" (European Landscape Convention, 2000).

It is recognized as a milestone when in 1992 the *World Heritage Convention* became the first international legal instrument to recognize and protect cultural landscapes, through the adoption of guidelines concerning their inclusion in the *World Heritage List*. The cultural landscapes definition represents such heritage as the "combined works of nature and of man" because "they express a long and intimate relationship between peoples and their natural environment".

In this scenario in which cultural systems and attributes can be recognized not only, as traditionally happened, by divulging the built and monumental heritage, the methods and techniques of

CULTURAL AND ECONOMIC LANDSCAPE: THE IMAGE OF THE SOCIETY

In the contemporary scenario, cultural phenomena are increasingly related to globalizing models, of financial or capitalist nature, to which, perhaps only apparently, local economies of a regional or geographical scale of solidarity and mutualistic nature are opposed. According to Edward Burnett Tylor in Primitive culture (1871), culture no longer designates, as still happened in the Enlightenment point of view, only activities driven by intellectual reasons, but also includes social habits and all those skills acquired and transmitted socially;

since 2003 the *Convention for the Protection of the Intangible Cultural Heritage* is the first international agreement addressed to intangible Heritage, and to those lifestyles, or according to antique Greek word $\delta\iota\alpha\iota\tau\alpha$ or *dìaita*, which demonstrate belonging to a society and its context intended as landscape cultural and economic: traditions, oral expressions, performing arts, rituals, festive events, crafts, traditional agricultural practices that are a "living" expression of the communities' identity and populations that recognize themselves in them. This extension of the concept of culture on the one hand to all manifestations of social existence, on the other to any human

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valorization are nowadays applied to the system of cultural heritage and its cognitive, social dimension and symbolic through the representation of historical, cultural, aesthetic and environmental values of a cultural asset and its tangible and intangible meaning. The enhancement strategy produces advanced visualizations and informative, multimedia and multiscale modeling, privileging the immersive value, of direct comparison, of interaction and creating new operating methodologies to simulate experience and imagination through technologies. Strategic design, understood as a disciplinary whole of the industrial design universe, therefore deals with designing, regenerating and transforming the value of processes, goods, environments and services and transferring it to society. The project of a system of recognition and experiential use proposes the mediation between the territorial context, the system of cultural goods or the widespread heritage and the community intended as recipient and user, allowing multiple forms of representation of the goods and legitimizing their values, access, use and appropriation differentiated, either directly or by using technologies. In this sense, transformation of value is not limited only to designing the experience of using goods (experience economy), but introduces an innovative, systemic and shared vision of cultural heritage in all its forms. The service economy is creating an innovative social system based on a particular type of economic return. Goods and services are no longer sufficient as economic products; a new need has been created: through a design process an integrated fruition project can be created. Experiences are the fourth form of economic offer, distinct from services, products and raw materials but so far not recognized as such. When choosing an experience, it is assumed to accept the economic value of spending time enjoying a series of events that involve us directly. The oldest and most basic form of experience is that of prolonged use of a product, that is to say, for Pine and Gilmore they define with an idiomatic expression "ing the thing: any can be inged" and that is that any process can be conceived and designed in experiential form (Pine and Gilmore, 2011).

The cultural scenario assumes, according to the aforementioned *European Convention*, a renewed economic dimension which is not only that of the so-called cultural tourism but more specifically of the artistic and cultural sector and of the creative industry and of the relationship between research and businesses where it is necessary to develop new professional skills, transversal digital skills and sustainable technological applications in relation to the panorama of cultural actors.

PERSPECTIVE OF SENSES: ENVISIONING THE TACTILE VALUE OF IMAGES

Bernard Berenson, in his 1948 work *Aesthetics, ethics and history in the arts of visual representation*, describing in detail his working method speaks of the "tactile values" which: "are found in the representations of solid objects when they are not simply imitated (no matter how truthful) but presented in a way that stimulates the imagination to feel their volume, weigh them, realize their potential resistance, measure their distance from us, and that encourages us, always in the imagination, to put ourselves in close contact with them, to grab them, embrace them or go around them ". His statements are surprising if re-read today, thinking about how research on augmented representation finds new systems and methods in simulating the perception of an environment or an object in the virtual and physical tactility of 3D printing. The tactile values, as recalled by Berenson, are therefore the qualities that together with the movement in space allow a represented environment, installation or object to be perceived as existing and therefore bearer of a fundamental perceptual value. Berenson, referring to Giotto, claimed that he was a "supreme teacher in stimulating tactile consciousness" allowing the observer to receive an image that could help the senses to build the third dimension. In this way it anticipates the research in the perceptual and sensory field of neuroscience and that the applications of new technologies allow us to develop; where the painter, through his technique, can only graphically transfer "tactile values to the retinal impressions" and "excite the tactile sense", today in the design process the most innovative trend lies in creating tactile image through virtuality, the immersive and interactive experience and the narrative that builds memory. The illusion of being able to touch with hand or the tactile representation as well as the tools to create effective cognitive experiences are the most innovative keys for the transmission of heritage and knowledge within cultural institutions.

The experiential design proposes a system of mediation between environments, cultural contents or intangible heritage (memory, territory, landscape) and the target community of users, allowing multiple forms of interaction, communication and representation of values directly or using technologies. In this sense, the design process is not limited to the experience of use of value, the economy of experience, but introduces an innovative vision of system and shared cultural heritage in all its forms; it also makes it possible to activate a participatory and inclusive learning process, of social well-being, which makes its diffusion in the community sustainable and from the institution, to the cultural operator, to the different categories of users. The dissemination of digital skills can be combined with the need for innovation and technology transfer for the benefit of the territory, young people, start-ups and industrial districts. Nowadays the availability of low-cost technological resources makes it possible to use cultural heritage through the project of experience and the personalization of the relationship between citizens and the cultural asset as a common value shared in a community. Representation deals with the multiple disciplinary specializations of creative sectors, proposing the definition of interpretative models for the analysis and representation of the historical, cultural, aesthetic and environmental values of a cultural asset as well as its material and immaterial meaning. The value enhancement strategy produces advanced visualizations as well as computer and multimedia modelling. J. Robert Rossman and Mathew D. Duerden synthesize the fundamental theories and methods from multiple disciplines and lay out a process

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for designing experiences from start to finish. They provide a framework of experience types, explaining people's engagement with products and services and what makes experiences personal and fulfilling. They introduce key concepts such as memory, intentionality, and dramatic structure in a down-to-earth style, and provide readers with the tools they need to design innovative and indelible experiences and to move their organizations into the experience economy (Rossman & Duerden, 2019).

One other critical issue interior design is dealing with is the change request for temporary or stable culture places and the challenge of creating context and story with new media technology for immersive cultural museum experience. The "on-site" experience is changing, particularly in cultural museums. Interiors are including the use of advanced digital media technologies in creating immersive, story-driven visitor experiences, and new media technologies are being used to create cultural context and narratives. The change, the attitude transformation raises issues of representation, authenticity, integrity, and inclusivity. This engagement is critical at a time when cultural museum attendance is seriously declining. Going forward, museums must determine how to mentor future generations in interpreting past and present cultures. Cultural storytelling using new immersive design techniques is emerging as a powerful tool (Burnette Stogner, 2011).

The concept that multi-sensory immersion can be used to engage audiences and heighten emotional experience is not new. It has been used in cultural rites and religious ceremonies for millennia. In the past century, populist museums have used dioramas, film projections, sound effects, voice tracks, and the occasional smoke and mirrors to contextualize cultural artifacts and historical objects with immersive atmospheres. They have drawn on

the staging and *mise -en-scene* techniques commonly used in theater and film. They have at times dared to use cutting edge technologies, such as stereoscopic 3D when it was first popularized in the 1840s, to appeal to a wider audience (Burnette Stogner, 2011).

Moreover, the experiential value of cultural heritage, with its emotional imprint and fruition, is emphasized through immersive and interactive technologies. In the last years, according to Burnette Stogner a visitor strolls through the exhibition as a spectator/observer, the typical passive role. In a moderately active role, the visitor participates in the narrative as a time-traveler, explorer or discoverer. In a highly active, interactive, and/

or networked role, the visitor might contribute his or her own experiences or mediate information in the form of historian, archaeologist or art curator (Burnette Stogner, 2011).

Recent applications make it possible to envision and design a structured and flexible knowledge process including simulation of forms of innovation and an increase in the social value of the transmission and sharing of cultural contents. A couple of remarkable best practices was designed by the Italian firm Studio Azzurro, a team of new media artists founded in 1982 in Milan by Fabio Cirifino, Paolo Rosa and Leonardo Sangiorgi. Their video art installations developing concepts that are dealing with technology to enhance art hybri-

Fig. 2 - A Oriente. Cities, Men and Gods on the Silk Roads, exhibition itinerary, Rome, Baths of Diocletian, Silk Roads exhibition, International Biennale of Culture, 2011. The multimedia staging interprets twelve emblematic places, able to tell the complexity and the cultural and religious contamination of the Silk Roads. Picture source: Studio Azzurro.

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dization, rituals, experimentations of behaviors. The text of *Verità Figure Vision* (1998) is also written with the philosopher Jacques Derrida, with whom they have in common the idea of opposition to the reality of the contemporary. Studio Azzurro's "sensitive environments" were judged to be an interaction mode between the observer and the object. One of them is Sensitive City, a sensitive environment, presented in Shanghai at the Italian pavilion of 2010 EXPO (fig. 1). The idea of *Sensitive City* refers to the great tradition of the imagined cities, from the City of the Sun by Tommaso Campanella to the *Invisible Cities* by Italo Calvino, with the intention however that does not remain a suspended model, a literary invention, but that it is ideal only because it is not there yet, but it may be there. Studio Azzurro describes the storytelling project with these words: "When after

a long journey, a traveler will arrive in *Sensitive City* he will have to stop, touch the first wayfarer he meets: he will be like the old" indicants "taking him by the hand and accompanying him to show him how that delicate and elusive character that connotes the city is deposited in the immateriality of its spaces, it will show him the city of wind, water, silence ... which corresponds to his memories, his desires and his dreams, following the different trajectories the traveler will discover rolled up cities to each other. It will pursue multiple paths that unfold, like so many balls thrown on the ground, creeping into cracks, in shady areas, in the variegated and wrinkled body of the city." Syracuse, Matera, Lucca, Chioggia, Trieste ... they are different from each other and you have to turn them all, over and over again, to be able, perhaps, to tell them. The interest emerges of being able to

take the idea of an anti-utopian city as a pretext to offer solicitations, elements of confrontation, to generate a vision of how a city of the near future could be configured (Studio Azzurro, 2010).

A second remarkable project, *A Oriente Cities, Men and Gods on the Silk Roads* was designed in 2011 for the *Rome International Biennale of Culture* as exhibition itinerary at Baths of Diocletian (fig. 2). The common thread of the three great religions that characterized the terrestrial routes of the Silk Roads from the II century. B.C. to the XIV sec. A.D. accompanies the visitor along an articulated multimedia path that winds through the suggestive environments of the Baths of Diocletian. Through the filters of gaze, sounds, voices and gestures, the multimedia staging interprets twelve emblematic places, able to tell the complexity and the cultural and religious contamination of the Silk Roads. The wooden case, a storage system for archaeological material stored in these spaces, becomes a metaphor for travel and support for video installations, useful for staging that develops here, in time and space, between precious finds and rare pieces that they interact with wide scenarios, echoes of distant voices and stories of timeless places and characters (fig. 3) (Studio Azzurro, 2011).

THE TECHNOLOGICAL MEDIATION EXPERIENCE AS MEMORY AND KNOWLEDGE TRANSMISSION

The Amatrice Museum was razed to the ground by the 2016 earthquake of Central Italy; it collected works from the Amatrician territory but also materials on the history of the building and on the city of Amatrice, that was completely destroyed. The matter is how to establish a defensive system for the memory of the community pending the uncertain future reconstruction of the tangible heritage. The research project promoted to represent and

Fig. 3 - A Oriente. Cities, Men and Gods on the Silk Roads, exhibition itinerary, Rome, Baths of Diocletian, Silk Roads exhibition, International Biennale of Culture, 2011. The multimedia staging interprets twelve emblematic places, able to tell the complexity and the cultural and religious contamination of the Silk Roads. Picture source: Studio Azzurro.

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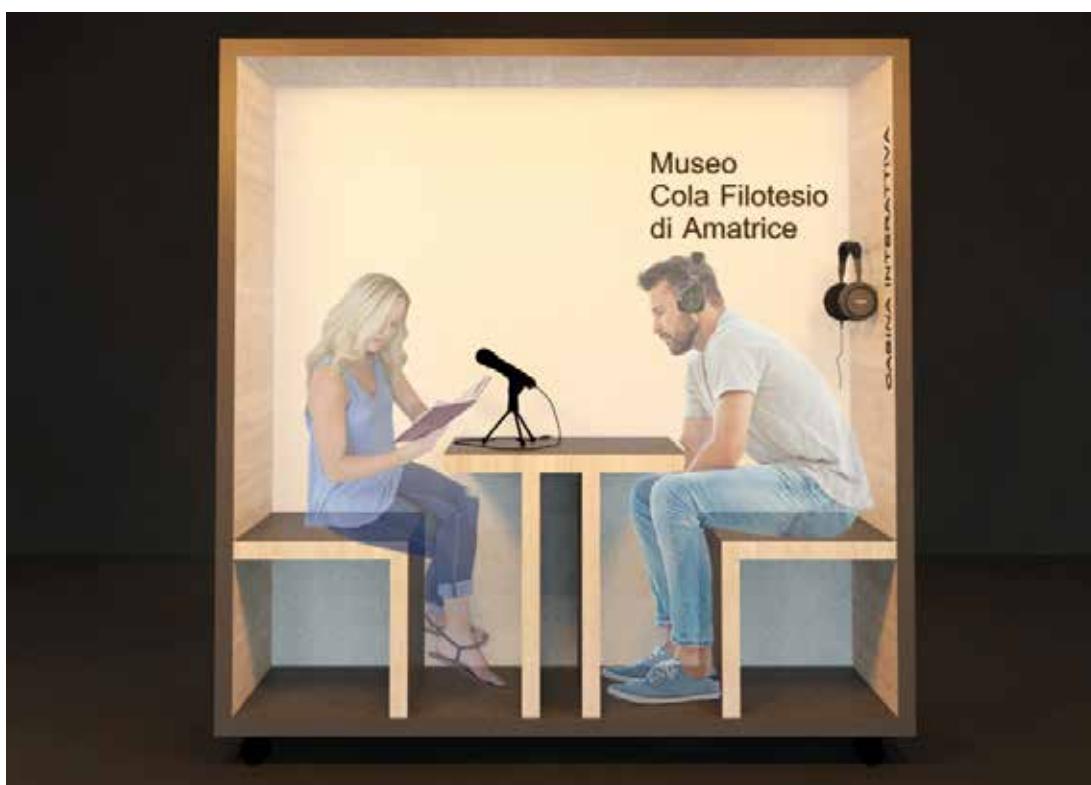
Fig. 4 - The installation also allows the recording of vocal contributions, according to a series of topics, issues and keywords divided into thematic sections: territory, history, places, traditions, people.

disseminate part of the lost heritage through an immersive and interactive system aimed at the experiential involvement and dissemination of the Museum contents, the experience as collective tool to restore memory and the cultural process of knowledge transmission. The new museum can be envisioned going beyond the tangible and common sensorial environment in order to communicate and share heritage according to a process of re-appropriation and extending the concept towards the intangible dimension.

The goal is to create awareness and attention on the cause of reconstruction by activating a dedicated fundraising. The installation of an immersive space with 3 interactive walls of 6 square meters each planned according to a strategy of public communication and civic participation. The user interfaces, with touch mode, but possibly expandable with eye-tracking and gesture systems, stimulate multi-sensory perceptions through the simulation of participatory scenarios inspired by the territory and the museum collections. The dynamic contents to be explored in an immersive way are usually developed within a virtual Unity environment, a graphic engine that allows 2.5-3D views usable without wearable devices (fig. 4).

A further objective is the development of a mobile interactive booth, intended for the collection of direct testimonies by citizens on the heritage of Amatrice, stories of life, memories of the city, to be geo-referenced. It is a Living Library, to make oral history and democratic participation alive (fig. 5). It is the application of a museum model defined by Nina Simon as "participatory museum"; the activation of participatory processes transform the museum into a socio-cultural platform that connects different subjects together (Simon, 2010).

Rather than the mere transmission, knowledge is achieved through direct personal and social commitment. The art of memory is a practice which, following a precise system of rules, is aimed at the conservation and use of information for the benefit of civilization and citizens by associating a series of "places" and "images" with memory. A living library works like any library: books are people in the flesh who choose their story or memory based on an aspect of their identity, their past, the place where they lived. It is no longer just the museum that tells about itself but people help to tell the museum, taking back their common heritage, their history and also the objects that were preserved in the Filotesio Museum. Memory recover cannot be separated from sensory experience and direct transmission through the effective storytelling and environment. The approach is an application of the aforementioned *Convention for the Protection of Intangible Cultural Heritage* (Paris, 2003) and keeping in mind Umberto Eco words that memory is "a faculty thanks to which both individuals and collectives base their identity (the forgetful does not know who it is)". (Eco, 1998) The intangible cultural heritage, transmitted from generation to generation, is constantly regenerated 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 of human creativity.

According to the *Recommendation concerning the Protection and Promotion of Museums and Col-*

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lections (Unesco, 2015), some primary functions are attributed to museums, including conservation, research, communication and education; the Recommendation underscores the importance of technologies in assisting museums in their task of educating and encouraging continuous learning. On this last aspect it is emphasized that "museums engage in formal and non-formal education and lifelong learning, through the development and transmission of knowledge, educational and pedagogical program, in partnership with other educational institutions, notably schools. Educational program in museums primarily contribute to educating various audiences about the subject matters of their collections and about civic life, as well as helping to raise greater awareness of the importance of preserving heritage, and fostering creativity. Museums can also provide knowledge and experiences that contribute to the understanding of related societal topics". Just as in the *Enlightenment* when culture loses its aristocratic character and it becomes the complex of knowledge entrenched to humanity, which must be transmitted from one generation to another and enhanced through the use of the rational powers of man. For the first time culture encompasses the modern science of nature but also the mechanical arts that bring technical progress (as well documented by the *Encyclopédie*).

Mechanical arts or technologies have changed the exhibition space within museums and places for culture learning and fruition; rooms are transformed according to a virtual amplification perspective of the paths, interaction with collections is designed according to personalization (users can select contents), participation and sharing is allowed (users can create new cultural contents and share them with other users) moving towards new forms of active and participatory learning. Technologies in museums are thus recognized as opportunities in terms of conservation, study and communication of heritage, but also of heritage and common value creation, sharing and dissemination of knowledge. Technologies are therefore changing the relationship between users and the utilization environment and cultural content in

Fig. 5 - Inside the installation, among the features provided, there is an interactive electronic whiteboard including a voice recognition system that allows voice commands.

museums, libraries and places of learning. The environments must be imagined and transformed by also considering their virtual extension and allowing a range of customizations linked to the selection of contents. Participation and sharing mediated by the user can also create new cultural content by blazing a path to new forms of active and participatory learning. Among the cultural actions that are related to new media and their language, the creation and sharing of information and knowledge are included, as well as the accessibility to heritage through digital artefacts that represent ideas, identities and values of belonging.

To these, Manovich also adds the interactive cultural experience, the opportunity to enjoy the experiences and cultural products by visitors, as well as ways to recreate the displayed objects, textual, vocal and/or visual communication and participation in a type of information that "ecologically" regenerates knowledge and its diffusion. Knowledge technologies offer multiple opportunities and challenges to cultural and scientific practitioners; the challenge of involvement and experience is not only one of technology and design, but also, and perhaps more importantly, a mental and imaginative one. In this regard, Manovich has

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also distinguished some specific cultural actions that are mediated by the new digital tools: creation, sharing of information and knowledge; creation, sharing and accessibility of digital artifacts representing aesthetic ideas and values; to the interactive cultural experience; textual, vocal and / or visual communication; participation in a sort of ecological information online (Manovich, 2002). Drawing as experience makes possible to imagine multiple forms of representation and to make them sensitive towards the fruition environment. Drawing also shapes the experience of goods or spaces (experience economy), but introduces an advanced vision of things and systems and stimulates a shared vision of material culture. As Laura Marcolini reminds us "It is clear that the configuration of the space and the design of the path of approach to the moment of interaction are not only part of the narrative, but are fundamental for a sensitive environment to produce the interactions just described, because they facilitate that "sensitive imagination" (*phantasia aistethiché*) of which Aristotle already spoke. Indeed, designing environments requires more than technical preparation, a great sensitivity for the existing space and its possibilities, to be combined with just as much ability to imagine that space transformed by the presence of a narrative, of a dramaturgy that produces an experience" (Marcolini, 2020).

Computer graphics and digital imaging are changing the relationship between designers, users, environment, cultural and educational content of cities, physical and virtual public space, as well as an archive, library, and museum collections. The urban and architectural environments need to be reimagined and transformed considering their virtual extensions and allowing a range of customizations linked to the selection of contents. Participation, interaction, and sharing of information mediated by users and synthesized by means of drawing, rendering, mapping, and modeling, should also lead to innovative solutions for environments wellbeing, safety, and ergonomics, and ensure wider access to high-quality cultural contents. Case studies and best practice introduce critical issues to face the challenges of capturing and designing a physical space or envisioning a cultural space that is set up with innovative ICT technologies. 3D data, archives, projection, modeling, sensors, light, digital representation, interaction, responsive surfaces need multidisciplinary methodologies encompassing several topics: places for culture, digital heritage, access to culture and education, design of urban environments and interiors. Knowledge technologies therefore offer multiple opportunities and challenges to cultural and scientific operators; challenge of engagement and experience is not only driven by technology or design skills but it is also and above a matter of mind, of imagination, of drawing as experience.

Fig. 6 - Prototype and experiential simulation for Amatrice at the Design Department of the Politecnico di Milano.

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