CAN YOU ACCESS CULTURE? AN EVALUATION MODEL FOR THE ACCESSIBILITY OF CULTURAL LOCATIONS

Scientific paper

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Abstract: Participation in social and cultural life is the right of every human being, but for some persons (with disability, chronic illness, mobility and sensory issues…) it is greatly hindered by the inaccessibility of spaces and content. This topic has recently gained importance, owing to our growing awareness of the percentage of persons with mobility problems, and particularly regarding the aging population in many countries. Moreover, for several countries, the issue of accessibility is also related to the growing importance of tourism to their economy or the presence of many persons with disabilities related to wars. This paper presents the research on the evaluation of the accessibility of cultural locations (urban sites, museums, parks, theatres, etc.) through in-depth interviews and surveys with representatives of persons with disabilities, chronic illness, mobility and sensory issue and mental health issues, and by creating an evaluation multicriteria model with guidelines based on these inputs. The results reveal that while it is possible to evaluate the flow and content of cultural activities, there are problems of inaccessibility and lack of awareness among the general and professional public.

Keywords: Accessibility; evaluation model; cultural heritage; public participation; in-depth interviews; spatial aspects.

1 INTRODUCTION

The percentage of persons with disabilities has been estimated as 15 % [1], without accounting for persons with various chronic illnesses and mobility and sensory issues that are not registered as disabilities, which are quite present in populations over 60 years in age [2]. The incidence of disability rises with poverty [1], which makes public spaces and interventions significantly important. The acknowledgment of the importance of including persons with disabilities is also increasing [3]. Although the legislation on accessibility for persons with disabilities in Western countries mostly stems from the 1970s, it is only recently that the vision of the design of public spaces is becoming more inclusive. This is related to the idea of the social model of disability, formulated by Paul Hunt, which states that many effects of disability are produced by the interaction of disability and social organization. This approach addresses various economic, physical, cultural, and social barriers that severely impact the lives and opportunities of persons with disabilities [4]. The concept of universal design was developed by Ronald Mace in the 1990s, encompassing the understanding of space and spatial barriers in that space (or products, services, etc.) in the seven principles of universal design [5]. Although the content of some events can play a significant role in whether many minorities want to participate [6], for persons with disabilities, chronic illnesses, and other mobility and sensory issues (hereinafter referred to as "persons with mobility and sensory issues"), physical inaccessibility precludes those users from even engaging in the content [7].

[8] states universal rights for everyone, from basic rights (food, shelter, etc.) to social and cultural participation. While [9] uses the term "everyone," it does not particularly state the issue of disability, although it does highlight the aspects of sex, race, and religion. [10] states the need to work on the discrimination against persons with disabilities and the elderly. [11] states the right to quality of life. [12] states the importance of universal design for urban spaces, buildings, products, and services. [13] emphasizes the social model of disability and highlights the need to use universal design in designing products and services. [14] was proposed as a directive for equal treatment, which was required to encompass four main sectors of discrimination. This directive was not adopted, thereby leaving unprotected particularly persons with disabilities - as other types of discriminations are partially covered in [15]. The directive was innovative as it highlighted the inaccessibility of the built environment as an act of discrimination. It also included "chronic illness" as a disability, which was the first time that the persons with chronic illnesses were recognized as a vulnerable group. [16] is oriented toward improving the inclusion of persons with disabilities, primarily in the use of websites. [17] highlights the right of the elderly to a social and cultural life in relation also to disabilities. [18] highlights the human rights' perspective and the importance of universal design and reasonable accommodation, emphasizing the accessibility of information.

1.1. Review of existing research and literature

The topic of accessibility of cultural heritage is becoming increasingly important with aging populations, better standards of living in formerly developing countries, and the growing relevance of tourism [19]. In Italy, detailed recommendations are provided by [20], which prescribes accessibility in physical terms, of contents [21] but also guarantees adequate spatial requirements (such as having designated spaces for guide dogs). Italy has also developed the longest accessible paths for heritage sites [22]. Universal design in Norway is viewed as a motor for participatory innovation [23, 24]. Some countries have detailed guidelines [25, 26]. The importance of accessibility of culture as a part of tourism offers has been addressed by some European projects [27]. Attention to accessibility is also being given in countries, such as Brazil [28] or Russia [29]. Particular attention is being paid to the accessibility of content using information technology (IT) solutions [30, 31, 32] for its promotional capabilities and as a mean to provide some groups of vulnerable users, an access to culture. However, to aid accessibility, these tools have to be designed with attention being paid to different user groups and their needs [33].

Research shows that there is a general lack of awareness regarding accessibility [34]. There is a lower representation of person with disabilities in activities in public spaces [35]. Similar invisibility is also experienced by persons with visual impairment, who are often neglected in cultural offer. The lack of training and sensitivity of the staff are deemed to have a great impact on cultural context [36]. This is further confirmed by the low visibility of persons with disabilities, especially those not the symbol of disability (wheelchair users, blind person using cane…) [37]. This makes further investigation and participation in decision-making much more difficult and can produce results that do not consider the needs of persons with mobility and sensory issues due to inadequate representation.

Although there is growing awareness of the importance of inclusion processes in social life, it is only marginally related to persons with mobility and sensory issues [38, 39]. Public and social rules (through laws, organizations, etc.) impact all those groups that depend on publicly accessible services [40]. In administration, while accessibility is evaluated often but non comprehensively, using the checklists, resulting in an analysis of punctual aspects. In research, the evaluation is mostly related to IT [41] and is rarely analyzed for spaces [42]. Only rarely, the evaluation is done regarding the quality of life. The rare research conducted in this regard [7] shows that persons with mobility and sensory issues can partake much less in built and natural heritage values.

The main part of the research presented in this paper lasted from 2018 to the beginning of 2020. In the spring of 2019, a workgroup, with representatives of persons with mobility and sensory issues was created. The locations chosen for the study were surveyed in detail and work meetings were held on a weekly or biweekly basis. The research was interrupted by the COVID-19 pandemic. The elements for the evaluation of accessibility were chosen according to criteria: representativeness and importance in local and international contexts, diversity of elements and functions, and combination of cultural built heritage and cultural collection/content. The research had to answer the following research questions: 1. What are the barriers and aggravating factors for accessibility for persons with mobility and sensory issues? 2. Do users without mobility and sensory issues use, perceive, and participate in cultural heritage spaces in different or similar ways than users with mobility and sensory issues? 3. Is it possible to create a model for the evaluation of accessibility and inclusiveness of spaces that provides realistic feedback? How can this model be created? 4. Does legislation cover all aspects of the use of cultural heritage, especially considering flow and inclusion? Further, does the situation on site result from non-adherence to regulation or a lack in regulation? 5. What is the situation of inclusiveness in terms of accessibility? Why is it so, and how can the situation be improved?

The model was created as a model that could be used in various contexts and was verified on the case of the city of Rijeka, related to the activities of the European Capital of Culture.

2 MATERIALS AND METHODS

The main part of the research was conducted in the context of different activities (or groups of activities) which partially overlapped during the two-year period of the research (mostly during 2019–2020). The main research was preceded by the preliminary part that started in 2016, by communicating with the persons with disabilities (i.e., motor and perception) and defining topics related to problems of movement and orientation (i.e., different types of surfaces, handrails, and elements of orientation). This was followed in March 2018, with in-depth interviews of persons with different disabilities as a part of the mentored theses [43]. Here, through the interviews, different issues related to the accessibility of public spaces (ranging from problems with the entrances to the use of space and content) were analyzed. The data gathered was the basis for the survey that defined more in detail the characteristics of the use of public open spaces for persons with disabilities. After this preliminary phase of the ongoing research, at the end of 2018, preliminary research was conducted on five sites based on existing information and in-depth interviews with persons with mobility and sensory issues. In this phase, the research survey was created (partially with open-ended questions) to allow the coverage of different issues without missing the points of connection. The main part of the research commenced in July 2019 with the formation of a workgroup for the accessibility of the European Capital of Culture 2020, comprising experts, representatives of the association of the persons with disabilities, and administration staff. The first group of activities (the interview phase with on-site surveys with photographic documentations and dimensional and element verification) consisted of the on-site survey inspection and in-depth interview with representatives of persons with mobility and sensory issues—individually and in workgroups—and insights from institutions. The second group of activities (analytical phase I) consisted of the creation of an evaluation model, evaluation, at first as preliminary research, and then applied to broader analysis of locations. The third group of activities (analytical phase II) consisted of the verification of national legislation.

2.1 The in-depth interviews and survey group of activities (interview phase with on-site surveys with photographic documentations and dimensional and element verification)

The in-depth structured interviews (an extract is provided in Table 1) were conducted with the persons (and representatives of) with mobility and sensory issues (wheelchair and crutch users, other mobility tools users, persons with visual impairments and low vision, persons with hearing impairments, different chronic illnesses and balance problems, as well as those with high sensitivity towards environmental stimuli issues, persons with mental health issues such as autism (for both adults and children), and also with persons with different economic situations) by two experts from the University of Rijeka with previous work or research on accessibility. Various representatives of persons with disabilities (from local and county associations) represented nine different associations (as listed above, and not always the same person for a particular association), and six experts represented four institutions that work with persons with mental and physical disabilities, as well as with elderly persons with disabilities. Five technical and administrative personnel helped with on-site surveys and interviews. The interviews and on-site surveys were oriented and based on the individuation of patterns of use and patterns of barriers experienced in space and content use, as well as identification of particular barriers in spaces and content use [44, 45].

Table 1 The extract from survey on accessibility of cultural locations

Access to location		
How did you arrive at the location?	Multiple choice, descriptive	By personal vehicle to the location, by personal vehicle near the location, by personal vehicle away from the location, organized individual or group transport (somebody else had to drive), public transport, by foot or without assistance besides assistive tools, I could not arrive at the location (explain)
Did you need assistance to arrive at the location?	Multiple choice, descriptive	Yes (explain), No, I could not arrive at the location even with the assistance of other people
Do the weather conditions greatly impact the possibility of access to the location?	Multiple choice	Yes, No
Physical communication		
How did you enter the location?	Multiple choice	I entered through the main entrance, I entered through the secondary entrance, I could not enter the location
Could you use the whole space like other users?	Multiple choice	Yes – independently, With the assistance of temporary tools and communication with the staff, No
What barriers did you encounter?	Description, list	Describe
Was the orientation adequate?	Multiple choice, descriptive	Yes, No (describe)
Fruition and perception		
Are the main attractions of the location accessible and can they be studied / can you perceive the materials (form, texture, signage, etc.), for example: form, colors, details of the facades, pictures, dialogue of the actors, etc.	Multiple choice, descriptive	Yes, Partially, No (describe)
Did the location have tools that can aid or allow alternative information and perception of the attraction (audio-visual tools, inductive loops, audio explanations, etc.)	Multiple choice, descriptive	Yes, Partially, No (describe)
Do you think you could perceive the attractions in their totality?	Multiple choice	Yes, No

Does the location have enough space for relax / meditation / thinking / waiting?	Multiple choice	Yes, No
Could you use the secondary facilities at the location (bathrooms, restaurants, etc.)?	Multiple choice	Yes, Partially, No
At the location, did you have problems with too much light / inadequate climatization / lack of air / dust / noise…?	Multiple choice, descriptive	Yes (describe), Partially (describe), No
In the spaces of the location, did you feel comfortable, welcome, relaxed?	Multiple choice, descriptive	Yes, partially (describe), No (describe)
Please, indicate what affirmations describe your stay at the location.	Multiple choice	I want to go away as soon as possible, I do not want to go to the location, I arrived, but I do not feel comfortable, At the location, I quickly experience headaches or get tired
Does the weather impact the use of the location?	Multiple choice	Yes, No
Social-economic aspects		
Does the location make it possible to easily socialize with others?	Multiple choice	Yes, No
Can you arrive / stay at the location by yourself?	Multiple choice	Yes, No
If you can come to the location by yourself, do you feel comfortable?	Multiple choice	Yes, No
Do you think that the use of the location is too expensive (including transport) to visit it regularly?	Multiple choice	Yes, No
Do you think that the use of the location is too expensive (without considering transport) to visit it regularly?	Multiple choice	Yes, No
Do you think that the different services (book shops, restaurants, etc.) at the location are too expensive?	Multiple choice	Yes, No
Do you feel the pressure of not adequately responding to the offer at the location (for example, dressing like other users) or you do not feel like a member of the invited community?	Multiple choice	Yes, No
Are the use and perception of the resources of the location possible for you?	Multiple choice, descriptive	Yes, partially (describe), No (describe)
Do you have any suggestions for improving this location?	Description	(describe)

In-depth interviews and surveys were conducted on different occasions based on the availability (specifically, physical presence) of person with mobility and sensory issues from July 2019 to June 2020. This phase included on-site surveys, the measurement of possible barriers, and discussions on the spaces and accessibility of content with associations of persons with mobility and sensory issues and organizers of cultural events on a weekly or biweekly basis. Where possible, the representatives of associations also checked the accessibility on-site; where this was not possible (because of location not being accessible), it was done using photographs and discussing measurements. The survey with the control group (25 people) was organized during on-site visits for five sites (i.e., the sites covered in the preliminary stage). These differences were useful in determining the guidelines for interventions. The control group also rated their interest in the locations and content.

2.2 Evaluation model (analytic phase I)

Owing to accessibility being a complex topic, the evaluation model must cover different needs. It should be flexible and adaptable to different data [46]. As the model indicates problems in space (allowing for diagnosis), it can also

provide guidelines for value-focused thinking [47]. Considering an evaluation topic as a complex set of related sub-topics allows for the analysis of both parts of the system and the entire system [48]. Multicriteria decision aid tools have a long history, are widely used because of their simplicity and flexibility, and can be adapted to different contexts and issues [49, 50, 51]. The main elements of the model are indicators, which describe a certain aspect of a topic; the criteria based on which the values are assigned; the values assigned; and the weights, based on the importance of the criteria. The definitions of criteria and weights are based on expert opinions, and weight definitions can vary according to scenarios. In this case, the criteria and definitions of values were based on interviews with persons with mobility and sensory issues. The weights were defined by an expert (who worked with the workgroup). The assignment of values was done by experts who understand both the spatial and technical aspects of accessibility.

The first phase aimed to determine the aspects to be checked in the context of cultural heritage with regard to accessibility. The model had to reflect the real users' needs (i.e., access to and at the site, access to content and services, and other aspects that relate to useful use of the site—socialization and economic aspects) and the real impact of the space on the possibility of its use (i.e., barriers but also elements that highly impact the ease and possibility of use—stairs, lack of handrails, lack of chairs, glare and excessive sunlight, problems of contrast, smells and chemical sensibility, inadequate fonts, etc.), but also be used in locations that are currently too inaccessible for persons with mobility and sensory issues (i.e., it has to be possible to potentially use it even without the on-site survey of persons with mobility and sensory issues). This implies that the model must contain enough information to identify possible barriers and elements that impact the ease and possibility of use and to verify the connection between various stages of access (or checking the flow of use).

The spatial analysis of movement was analyzed for the use of heritage elements. Here, the discipline of architectural and urban design was helpful, as it considers both urban context and architectural object, and it considers those in complex functions—use (i.e., important in terms of accessibility of content), communications (i.e., physical and visual, important for basic access to sites, use of content and services), and environment [52] ((i.e., wellbeing, comfort, physical, mental, and social, important for ease and possibility of use) [52].

All parts of the model (interviews, on-site surveys, and the evaluation model) had to reflect the questions of accessibility. As accessibility does not regard only the punctual elements of buildings but also the access, fruition, and contemplation of content, the accessibility to heritage in a model is considered as a "flow," where there cannot be interruptions. Therefore, the four main parts of accessibility were identified (Table 2) and are related to the accessibility of location (i.e., by public or private means, or walking, considering different aspects of each mode of access—bus stops, bus entrance and exits experience, existence of parking and waiting spaces, barriers at the entrances), physical communication (i.e., movement—continuity with the outdoor communication, elements of barriers and ease of use, such as stairs, ramps, benches, eaves, elevators, elements of orientation, information, etc.), location (i.e., open or closed space), accessibility of content (i.e., existence of different methods of presentation of the content—auditory, visual, tactile, with adequate fonts, graphic design and different levels of interpretation), and services (i.e., bathrooms, bars, bookshops, etc.) for different types of users and socio-economic accessibility (i.e., opportunity to have both alone or social options, verified by reading the site—such as spaces for sitting in company, separated spaces and similar, financial aspects, by checking the prices of access and services necessary for the adequate use of content).

Table 2 Four main spheres of accessibility

Four main spheres of access and inclusiveness	Reasoning/choice of criteria
Going to and from the location ("Position" in evaluation model)	Inaccessibility can start with lack of modes of access (access by stairs, distant parking spaces, slopes of roads and access, slippery surfaces, etc.), impacting mostly physical access
Physical communication at location/in the building	Use of location/attraction can be hindered by barriers to movement, ease of orientation and suitable services (mechanical, IT, personal, etc.), impacting mostly physical access
Use—participation in main attractions and use of services	Experience, perception, participation, and understanding, can be hindered by lack of adequate presentation (space, techniques, guide, etc.) and barriers to use, impacting inclusiveness of space

Social-economic aspects	Social opportunities can be hindered by lack of adequate space and economic and image barrier, impacting inclusiveness of space

The created evaluation matrix combines the checklist and matrix grading of the characteristics considered to be the elements (i.e., barriers—stairs, lack of elevators, lack of accessible bathrooms, but also of elements that impact the ease and potential of use, such as glare and allergenic materials) and as the flow (i.e., continuation from one space to another). The evaluation matrix allows the following: 1. To identify possible interruptions in the flow of accessibility (this is possible due to the structuring of the model based on consideration of the flow of activities and not as a checklist of different elements), 2. To identify possible barriers to participation in experience—perception and understanding of the content and use of services, and 3. To give guidelines for necessary interventions (based on the identified barriers).

The main groups of characteristics of the locations (i.e., Position—related to the access to the location, Physical communication—related to the movement at the location, Use—related to the content accessibility, and Social-economic aspects) were evaluated according to different criteria for each group of characteristics, and according to set of descriptive qualitative indicators (as provided in the extracts in Tables 3 and 4), graded from 3—best, to 0—worst, with special value "!" indicating a barrier or interruption in the flow of the activity. The value "0" also indicates that nothing can realistically be done at present (only for physical/technological reasons, and not for organizational, financial, or social reasons), and cannot be considered as a point of intervention. Therefore, the evaluation is also intervention-oriented.

Fifteen locations were chosen for the evaluation (Table 5). The potential barriers on-site were measured, interviews were conducted with the administration of the institutions, and documentation from the on-site survey was commented on by representatives of persons with mobility and sensory issues. Where possible, the representatives also participated in on-site surveys.

Table 3 Extract from the indicators and criteria of the evaluation model

Position	
Ease of arrival at the location and departure from the location	3 it is possible to arrive with different types of transportation for all, 2 the transportation has to be specifically organized, 1 it is possible but difficult to arrive, 0 there is a need for assistance, ! It is not possible to arrive at the location
The time required to arrive from public transit or parking space to the location	2 under one minute, 1 under three minutes, 0 under five minutes, ! More than five minutes
Weather impact on the visit	3 the arrival at the location is good no matter the weather for all, 2 the arrival is rarely problematic due to the weather, 1 the arrival is sometimes problematic due to weather, 0 the weather impacts the arrival
The reasons for time of arrival	! Route can be easily improved, 0 the route is very difficult to improve or is without barriers
Physical Communication	
Entrance to the location/building	3 it is possible for everyone to enter through main entrance, 2 it is possible for most to enter through main entrance, 1 it is possible to enter through secondary entrance, ! It is not possible to enter the location/building
The ease of the orientation	3 The orientation (specially from the main entrance) is clear - for all, 1 the orientation is somehow clear, 0 the orientation is not clear
The ease of approaching adequate services related to physical access	2 it is easy to approach the adequate services for all, 1 it is somehow easy to approach the adequate services, 0 it is not possible to approach the services
Type of barriers included	2 no specific barriers, 1 minor non complete barriers, ! the barriers are easily removed, 0 the barriers are very difficult to remove
Use	
Perception of the attractions - perception and study of attraction focus (facades, exhibits, speech, text, etc.)	3 perception and study possible, or alternative ways for perception and study available, 2 presentation guarantees basic perception and understanding, 0 or ! it is not possible to participate in perception and understanding - specify the group

Type of barriers to movement included	0 no barriers to movement, ! the barriers are easily removed (part of exhibition closed off, no assistants available, no dogs allowed, other obstacles, etc.), 0 ! the barriers are very difficult to remove
Type of barriers to use and participation included	0 no barriers to participation, ! the barriers are easily removed (no sitting spaces, light, noise, lack of air, pollution, etc.), 0 ! the barriers are very difficult to remove
Use of services (bathrooms, bars, shops…)	3 barriers in use of services, 2 bathrooms usable but not other services, 1 partially usable services, 0 ! services not usable - specify
Social-economic aspects	
Social opportunities	3 there are frequent social spaces with possibility of rest and talk for all in different parts of the location - free of charge, 2 there are some spaces with possibility of rest and talk for all free of charge, 1 there is one space with possibility of rest and talk for all free of charge, 0 there is no social space that can be used by all

Table 4 Extract of the evaluation of the location—for maximum values

Location *x*		***Points***	***Weight***	***Score***
	Position			
Ease of arrival to the location and from the location	3 it is possible to arrive with different types of transportation for all, 2 the transportation has to be specifically organized, 1 it is possible but difficult to arrive, 0 there is a need for assistance, ! It is not possible to arrive to the location	3	1	3
The time required to arrive from public transit or parking space to the location	2 under one minute, 1 under three minutes, 0 under five minutes, ! More than five minutes	2	1	2
Weather impact on the visit	3 the arrival to the location is good no matter the weather for all, 2 the arrival is rarely problematic due to the weather, 1 the arrival is sometimes problematic due to weather, 0 the weather impacts the arrival	3	1	3
Type of barriers included	! the barriers are easily removed, 0 the barriers are very difficult to remove or do not exist	0	1	0
	Total Position – maximum value			11
	Physical Communication			
Entrance to the location/building	3 it is possible for everyone to enter through main entrance, 2 it is possible for most to enter through main entrance, 1 it is possible to enter through secondary entrance, ! It is not possible to enter the location/building	3	1	3
The ease of the orientation	3 The orientation (specially from the main entrance) is clear for all, 1 the orientation is somehow clear, 0 the orientation is not clear	3	1	3
	Total Physical Communication – maximum value			13
	Use			
Type of barriers to perception included	1 no barriers to perception, ! the barriers are easily removed (by audio-visual equipment, tactile plans, induction loop, recorded speech, etc.) , 0 ! the barriers are very difficult to remove	1	1	1
Type of barriers to movement included	0 no barriers to movement, ! the barriers are easily removed (part of exhibition closed off, no assistants available, no dogs allowed, other obstacles, etc.), 0 ! the barriers are very difficult to remove	0	1	0
Type of barriers to use and participation included	0 no barriers to participation, ! the barriers are easily removed (no sitting spaces, light, noise, lack of air, pollution, etc.), 0 ! the barriers are very difficult to remove	0	1	0
Use of services (bathrooms, bars, shops, etc.)	3 barriers in use of services, 2 bathrooms usable but not other services, 1 partially usable services, 0 ! services not usable - specify	3	1	3
	Total Use—maximum value			10

	Social-economic aspects			
Social opportunities	3 there are frequent social spaces with possibility of rest and talk for all in different parts of the location - free of charge, 2 there are some spaces with possibility of rest and talk for all free of charge, 1 there is one space with possibility of rest and talk for all free of charge, 0 there is no social space that can be used by all	3	1	3
	Total Social-economic aspects—maximum value			6
	Total—maximum value			**40**

Table 5 Locations analysed

Locations	Representativeness and importance	Combination of cultural built heritage and cultural collection
1	Urban zone of international importance, different layers from prehistoric and Roman times onwards	Open urban spaces, cultural heritage buildings, archaeological heritage, portual and industrial heritage, touristic heritage, and temporary exhibition on various topics
2	Memorial and military area of international importance, one of the symbols of the city of Rijeka	Archaeological and architectural military and memorial heritage, with different layers from the prehistoric period to the Roman times and Middle Ages to the 19th and 20th centuries, temporary exhibitions, and extraordinary views of the city
3	Administrative and residential palace, now museum, of international importance, from the 19th century	Architectural complex, several permanent exhibitions, and temporary exhibitions
4	Industrial heritage of international importance, from the 18th and 19th centuries	Industrial heritage and museum—temporary exhibitions
5	Park, from the 18th century onwards	Park, exhibition in open space, and recreational area
6	Building, from the 19th century, used by many artistic organizations	Architectural complex and various presentations of different artistic groups
7	Historic villa, used as a museum	Building, exhibition, and workshops
8	Historic building, recently renewed	Exhibition, architecture, and memorial landscape
9	Historic building, theater and gallery	Modern architecture, concerts, plays, exhibition, and building
10	Club in historic center	Historic building, historic urban landscape, concerts, and exhibitions
11	Cinema in historic building	Architecture and movies
12	Theatre in historic building	Architecture and performing arts
13	Multifunctional space in historic building	Architecture and workshops
14	Museum in historic building	Architecture and temporary exhibitions
15	Urban zone	Built and natural environment and events

2.3 Verification of national legislation (analytic phase II)

During the verification of national legislation (the summary in Table 6) for accessibility, safety at work, fire protection in buildings, and fire protection in buildings for tourism, it was verified whether the locations are in line with the requirements of national legislation, if the legislation applies to the locations, and if there is an oversight in the legislation related to persons with mobility and sensory issues.

Existing legislation defines the elements that must be accessible according to the use of the building. Most locations were built before the introduction of legislation regarding accessibility, and the inaccessibility of the locations is not illegal for the existing location. Only three locations were renewed after the introduction of the legislation on accessibility and two of those are not accessible. Only few sites conform to the standard characteristics defined by the national legislation, although legislation on accessibility is available from 2005 (updated in 2013).

Table 6 The verification of the characteristics defined by legislation of selected locations—extracts

	1	2	3	4	5	Comment
Entrance (characteristics of opening and interior space)	+	-	-	-	-	Some elements are lacking: there is no indication about the weight of door
Communication (width, vertical communication)	+	-	-	-	-	
Vertical communication (dimensions)		-	-	-	-	Elements for vertical communication are not prescribed directly but as a part of communication in general.
Bathrooms (dimensions, elements)	+/-	-	-	-	-	
Counter (dimensions, communication equipment, tactile indications on the floor)	-	-	-	-	-	Induction loop is not prescribed for the cultural use
Advertising table (lower height)	+	+/-	+	+/-	-	No indication of other types of elements are given
Orientation plan in the building (tactile plan, dimensions and position, Braille, tactile indication)	-	-	-	-	-	Indications are given only for buildings not for open sites
Bus stop (position, dimension)						Not indicated as a part of cultural site, depends on education, not a part of the flow
Parking space (position, dimensions, surface)		-	-	+/-	-	Not indicated as a part of cultural site, not a part of the flow
Pedestrian surface (dimensions, elements)	+	+/-	+	+	-	Not indicated as a part of cultural site

3 RESULTS AND DISCUSSION

An analysis of the literature revealed that although accessibility is not a new topic, there are very few sources dealing with the use of space by persons with mobility and sensory issues. Most literature considers the accessibility of websites. The literature shows a lack of awareness among the general, professional, and scientific public, regarding the topic of use of space by the stated groups (in contrast to, for example, the walkability for the general public and pedestrians in traffic). The underlying problem with research that deals with the experience of persons with mobility and sensory issues is that the difficulty of engaging in public life, creates exclusion from many aspects of social engagement permanently. Therefore, it is difficult to engage in participation on any research or policymaking (e.g., on-site surveys). Even more so, if previous attempts to express the needs encountered resistance or lack of subsequent action (which was highlighted by representatives in the workgroup). This creates the need for more structured participation but also for processes that are open to all. In certain cases, it is beneficial to have an expert representing or backing up the persons with the difficulties. Persons suffering from certain difficulties, but highly functioning, can give both very valuable insights because they can express and help identify the problems but; they tend not to be invited or accepted as representatives because they do not appear to experience the problems. Similarly, persons with chronic illness or sensitivity issues, which tend not to be registered even if officially recognized by medical practitioners. All these observations were made by the workgroup.

For persons with mobility and sensory issues sites are inaccessible or accessible with great difficulty. In-depth discussions, as well as control group input were valuable in creating guidelines for possible interventions used in the evaluation model. The evaluation shows that none of the evaluated space was fully accessible for all user groups. Physical access to various services is difficult. Physical communication is greatly hindered at all sites but in the urban centre, mostly for wheelchair users. Use is hindered for all sites, mostly both for wheelchair users and persons with visual impairment. Social aspect is positive for all sites, as some are free of charge and some are

inexpensive; however, there is a lack of organized social spaces. Mostly, access is hindered for wheelchair users, but also for persons with visual impairment have difficulty moving but even more so in fully participating. For other mobility aid users, it is possible to use most of the spaces, but often with difficulties. Two-thirds of the sites are accessible by bus, but the real effectiveness for wheelchair and other mobility aid users can be hampered by a lack of knowledge and skills of drivers. The inaccessibility of several important locations by public transport indicates the difficulties of vulnerable groups (both in physical mobility and financial ability) to reach some of the main public goods. The locations are also generally difficult to access and use for persons with chronic illnesses, balance problems, and sensory issues, although these aspects generally go undetected by both decision makers (who tend to perceive more visible disabilities) and existing legislation, even if those users' experience is greatly hindered by various aggravating factors.

It was observed that some locations had inefficient accessibility tools. Not all of the locations have stopping place for cars that can be used for taxis or other transport for persons with mobility issues that are not registered as persons with disability (which is an important issue for over 60). Just two locations had accessible bathrooms, and none had an elevator. Even newly restored locations (4,9,13) did not have elevators. This was surprising considering locations 8 and 13 often hosted activities for persons with disabilities.

Regarding physical access, the locations were not compliant with the current standards (as most of them were built before the accessibility legislation and not adapted afterwards). Three newly restored locations were either not accessible or only partially accessible. Inclusiveness in use, perception, and understanding is not defined by the regulation; therefore, these gaps in provisions can be interpreted as a result of lack of regulation, in addition to practices. Social and economic aspects are not part of access regulation but are the best rated. The legislation is lacking in consideration of flow of activities. The legislation does not consider the flow of activities. It does not provide a particular timeframe to guarantee accessibility. In addition, the legislation on accessibility regulates the accessibility of users and has different standards than safety at work and fire protection legislation.

The institution staff were generally convinced that their locations and services were accessible. This is mostly due to two factors. First, most locations were built before accessibility legislation and are not illegal in their status. Second, the children from schools for children with certain disabilities (also part of the workgroup) were brought there by their assistants who physically carried them. This opens questions about the significant difference in organization for adults and children with disabilities as well as the invisibility of individual persons with mobility and sensory issues that are not part of the organized groups. In addition, acquiring inadequate tools at some point (i.e., platform, "scalamobil" stair climbing aid, etc.) deters further investments in accessibility.

The major problem for the institutions was that, generally, the building was not their property; therefore, ownership rights and duties were not clear. Some buildings would require the transfer of ownership to add accessibility facilities or would require additional volumes. Those activities would be possible although, they are time-consuming. There is also a lack of systematic financing for accessibility [59].

4 CONCLUSIONS

Users with and without mobility and sensory issues use, perceive, and participate in cultural heritage spaces in different ways. The difficulty of access deters many persons with mobility and sensory issues from even considering participating. Accessibility is somehow better for persons who are part of organized groups. The participation is mostly impacted for persons with visual and hearing disabilities. It is very difficult to find this out because of the difficulty of persons with mobility and sensory issues to engage in such activities, as well as in activities of participation. Therefore, a mixed-methods approach is needed, such as on-site surveys, photographic discussions, and in-depth structured interviews. It is possible to create an evaluation model to verify the accessibility of locations, but an understanding of both accessibility and space is needed. From an architectural perspective, it is possible to read spatial characteristics that allow for access, participation, and socialization. It is more difficult to recognize elements that influence the ease of use for persons with chronic illnesses, it is still possible.

The survey and evaluation were built considering activities as a flow and engaging different vulnerable users, even those often unrepresented when considering accessibility issues. Therefore, it is a good basis for the evaluation of different sites and their (not just cultural) offer. The detail of the model allows for the verification of different needs, which facilitates a better understanding of both barriers and aggravating factors, thereby permitting the identification of guidelines for interventions that consider the overall experience of different users. This can be

used as an input to the design process, a communication-aid tool with persons with mobility and sensory issues, and as a verification tool for the proposed designs and realizations. The model can be further tuned by other user groups in further research or implementation. The analysis of legislation shows that if locations are not legally required to comply with standards, they perceive no incentive to do so. Accessibility legislation does not include aspects of content or the needs of persons with less pronounced needs. The legislation also considers punctual barriers and prescriptions rather than the complete flow necessary for use. Most notable was the accessibility legislation being almost completely separated from other types of legislation that impact space and building, considering the person with disabilities as users of services but not as the potential providers of services, or being engaged in work. This shows that to improve the accessibility, the completeness of legislation is of uttermost importance. The on-site situation is a result of both legislation and non-adherence to legislation. Contact with the institutions revealed that there is an understating of the number of persons with mobility or sensory issues. This finding aligns with the findings of previous research in the United States and United Kingdom, where similar problems of institutions considering themselves more accessible than they are, were also found. This indicates the crucial importance of raising awareness regarding the significance of accessibility. The high recommendations of the control group indicate that cultural heritage is deemed important for experiencing the city. Its inaccessibility indicates the difficulty of vulnerable groups in accessing some of the main public goods. Accessibility can be improved through different aspects: modifications in legislation; raising awareness of the importance of accessibility, especially for decision makers; education on opportunities for accessible activities; and fundraising. As access impacts total participation in social life, different understanding of public spaces is required, with accessibility and content for all.

The current literature shows a somehow concerning reality. There is an increasing interest in the inclusion of vulnerable groups, but on-site situations for persons with mobility and sensory issues are not ideal, even in developed countries. In addition, most literature is concerned with inclusion in general and not specifically of persons with disabilities, and even less of persons with chronic illnesses that remain unrecognized. This poses a concern about whether the questions of physical aspects of accessibility will somehow remain behind (even in official international documents), both because they are often considered already solved, or because some other issues seem more pressing. However, this persists mostly because the spatial and technical aspects and “hard” interventions are most unfamiliar to institutions management. It is important to continue the research and action towards understanding different issues related to the equality of use of space by all user groups, and to support the decisions regarding accessibility with user groups, but also by representatives of the discipline engaged in universal design.

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