Socrates Grundtvig

Education and Culture

SCATE

SCATE Study Circles A Tool for Empowerment

Study Circles for All, Accessible Study Circles

CERPA Italia

C.E.R.P.A. ITALIA Centro Europeo di Ricerca e Promozione dell'Accessibilità

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Preface

This manual is designed to be used in informal situations in which citizens meet together at private places to develop scientific or research activities. All instructions indicated in it cannot be publicized. Special gratitude to Antonio Capoduro for his useful advice on web accessibility; and to Alessandra Tint, President of Association ALIAS of Genoa, for her help with the section discussing web accessibility to people with aphasia.

The following text has been read and commented also by Stefano Maurizio, Lucia Lancerin and Adriano Piffer.

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“Because We Want One Accessible World”

Piera Nobili, Chairwoman of CERPA Italy

A joke by Louis I Kahn is very well-known among architects. I cannot tell if it is based on a true story or like most jokes, it was inflated to emphasize the message. I hope that nobody will complain if I tell you as I remember.

Louis I. Kahn, who was very old at the time, attended a meeting. Being behind the lecturer's table he was asked: "Master, please, tell us about architecture". After he had thought it over for a while, scratching his chin he answered: "Architecture is a difficult thing." "Very well Master, but, please tell us something more about it." With a concentrated expression on his face, the professor thought it over a little more and then answered: "It is something **very** difficult."

"Because we want one accessible world" is a very difficult project too which concerns architecture of human ideas. As the master says "architecture is a very difficult thing,"

So in order to support my argument, I could cite the Italian Constitution on subjective rights, which nobody can ever deny whatever the reason. I could rely on jurisprudence, which through verdicts and decrees has established that accessibility is not just an environmental requisite, but a fundamental quality; I could assert the right for everyone to be independent, furthermore, I could argue that in social relations autonomy includes the value of inclusion and integration. I could quote the philosophy of difference and its direct consequence: exclusion; I could stick to technology and discuss the concept of barrier and its several aspects: physical, sensorial, psychological, cognitive, sociable, cultural, public and so on; I could dissert about applicability and usability as part of the conditions for accessibility ; I could talk about the inclusive design; I could …

Considering the little space at our disposal, I will leave these last lines to a much more simple reflection -- the world is populated by more than six billions people and finding two identical humans (except the monozygotic twins) is a very difficult thing.

For that reason, if we want to avoid indifference and racism we should consider the project no matter if it is a building or a web site.

The project, in any specific aspect, demands technical and scientific knowledge. It demands, first of all, the knowledge of the individuals who will live, take advantage and use the final results of the present project.

It is not only necessary to understand the needs, but also the habits and desires of people, as Eileen Gray once said. This is the only way to gain awareness that, "the one" for whom we have developed the project, is not just an abstract idea, but a human being. This is the "one" who asks for a project which is able to comply with the need to have a chance for the future and to see those rights which I have hinted at few lines before, respected. To ensure autonomy for all, through their own existence.

Introduction

Susanna Picasso, Director Area Work Policy of the Province of Genoa

The Province of Genoa promotes the Study Circles in order to support long life learning and improvement of citizens.

Study Circles are a pedagogical tool, which consists of small groups of people who gather voluntarily for a determined period of time to organize and carry out educational or cultural activities.

Project SCATE contributes to better defining the activities of the Study Circles thanks to the cooperation and confrontation with partners of three European nations.

The Province aims at reducing or, if it is possible, at completely removing any act of discrimination to citizens who have physical, sensorial or cognitive difficulties, which prevent them to enjoy a completely active citizenship.

The present manual has been realized in this context.

It is a text which can be used directly by the citizens who take part to Study Circles, but also by institutions and organizations interested in offering similar activities. The province of Genoa considers the Project SCATE and this manual, which is one of its first results, as very useful tools to draw the attention of a great number of people on simple actions which can help us to create a better society for all.

Environmental accessibility

Marité Ponzio, CERPA Italia, Trento, Italy

Preface: To Whom We Address

When people gather around a project, they have to be at ease and able to express themselves freely. Each individual has his own physical, perceptive, cognitive and cultural characteristics which make him/her a unique person and which determine his/hers abilities and special needs. These abilities and needs can change during life. Therefore, it is necessary that the environment allows equal opportunities to all people and it takes in consideration the different needs of everyone.

Also it is necessary for all members of the group the reciprocal respect and the consideration of everyone's special features. You will find in these pages some practical comments and instructions related to team working. It is in fact of utmost importance that no member of the group patronizes the others or is excluded. In order to avoid any discrimination from the very beginning it is necessary that:

Everyone receives detailed information on the program of the Study Circles and is able to register/express opinions.

The place where the activity will be carried out has to be achievable and accessible to all of the participants.

All conditions of activity's development, materials and equipment, have to meet everyone's different requirements.

The necessity of suitable facilities such as coffee machines, hygienic services, and possible personal assistants, has to be kept also in consideration.

The behavior of all participants must be mutual acceptance and respect.

Introduction

The following pages are dedicated to the ones who plan and organize group activities in the context of Study Circles and also to the ones who attend to them, because dialogue (together with other components as common sense, delicacy, flexibility) can prevent or overcome almost all problems.

The symbols, which you will find at the beginning of the different chapters of this paper, distinguish where it is necessary the organizers  from the participants  .

We would like to remind you, that the following pages do not concern the design or the realization of buildings, nor the realization of public services (which are subjected to strict rules). These pages offer instructions to allow the maximum possible inclusion of participants in the informally organized activities in private premises.

First of all

 You would like to propose a new activity of study, confrontation and information on an interesting subject that you would like to share with others, but how can you get in touch with the “others” and first of all: who are the others? Probably they are people you still do not know, but who could be interested in the subject you are proposing.

HOW to inform them on the activity you would like to organize?

WHICH information would you give them in order to lead them to participation?

 You intend to join a new study activity, you would like to discuss about an interesting subject and you would like to share information with others, but….

How to find these "others"? and first of all: WHO are these "others"? Probably – they are people you do not know, but who could share an interest on the subject you want to discuss.

HOW to get information about activities in which you could be involved? And WHICH information could make you decide to participate?

Who are “the others” to whom you address?

Among them, there could be people on wheelchairs or partially disabled or people with heart diseases, obesity, respiratory or joints problems, balance disorders, low vision and blindness, hearing disorders and deafness or simply elderly.

What are their needs?

And how to be available to people without being overcaring?

 Your "special" needs should not be an obstacle to your participation, but do consider that the others can also have special needs. And that it is about an "informal" group, based only on the good-will, availability and collaboration of all, including you...

 Written communication (on paper or on web pages) should be effective and easy to understand. The message has to be clear, simple but, first of all readable. It means that the characters have to be clear against the background and not too small. The background must not include images or graphic effects which can confuse the reader.
The most important information in the message should concern:
How to reach the place, the architectural characteristics of the place related to accessibility and possible equipment.

This will be our next subject.

 Our suggestion is to create the group first and subsequently to look for a suitable site for the meetings, according to the needs of the participants. If the practical problems are too complicated and your or other participant's house is not a suitable solution you can ask for help to an organization, a school or church or to the offices of your "provincia" which could provide suitable premises.

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 If you find an interesting activity, check immediately whether the place has the suitable architectural characteristics for your needs. Otherwise, if it is possible, contact the organizer and find together the most suitable solution, considering also the needs of all other participants (which can be quite different from yours!). If you can't find a solution and if the whole group agreed, you can also consider the opportunity to meet at your place.

Reaching the place

 First of all, the place where the meetings are held should be reachable for all. Some people cannot use the bus or walk alone. Reserved parking lots for disabled (which are set with a special recognizable symbol), can not solve all the problems or the problems of all people. Therefore, it is necessary to make sure that the place is:

-supplied with public transport: It will be necessary to check the distance of the bus-stops, schedules and frequency of transits and connections with other means of transport.

- attainable by private car, with parking facilities, also for the ones who have no recognition symbols (N.B. it can be useful to warn people if they have to pay for parking)

-connected to bus-stops, stations and parking lots through accessible and secure walkways.

 Clear instructions on the best way to reach the place are, apart from the address, all the landmarks we can remember e.g. signboards, trees, shops, colors, shapes and particular smells which can help everyone, but especially people with orientation or movement disorders, to find the place without getting lost.

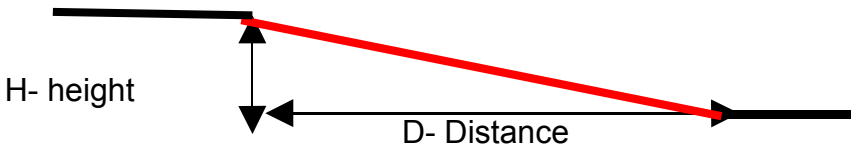
 The organizer should communicate precisely all the data concerning how the place can be reached. So that every participant can evaluate and get organized. It is also important to ask the participants to communicate possible problems as soon as possible. It can be a good idea to fix a halfway meeting and reach the place all together or organize someone driving the others.

If for entering the building it is necessary to use a door buzzer, do not forget to make sure that it is well recognizable, and achievable. It will be even better, if you all meet in front of the entrance and enter all together.

Entering the building

The entrance of the building is of utmost importance especially for disabled and people using wheelchairs The entrance should be levelled without height differences between the pavement and the entrance. Otherwise, it is necessary to have mechanical means (lift, elevator, and escalator). If the height difference is modest, an inclined floor, with a very low inclination (below 8 %), i.e. with long development would solve the problem. It is important to consider that to overcome a normal 16 centimeters step, (0.16 meters) you need a platform more than 2 meters long.

To calculate the precise inclination of the platform you should use this formula:



(Hx100)/D = P (inclination), %.

In some venues it is possible to ask for assistance and the usage of mobile escalator. In other cases, it is possible to borrow this device from some Voluntary Associations. However, it happens very

seldom because of the difficulty in finding the device which corresponds to the characteristics of the disabled or the stairs which have to be overcome.

 Do not forget to examine the characteristics of the steps or the stairs and to check whether there is hand-rail (if it is one, which side it is positioned). These elements are really important, because some people have always to use them. Not all the people who can walk can walk on an inclined floor without help.

 What if there are some steps, without any other alternatives?

In general the ones, who use wheelchairs, can overcome these obstacles with someone's help; paying much attention to avoid the overturning of the wheelchair. In a similar way, people who can walk but have eyesight disorders need the help from other people: - ask the person how you can help and follow his/her instructions, without improvising, because disabled are usually accustomed to be supported in a certain way.

Do not demand that everyone is at your disposal, knows what to do and how to do it. On the other hand do not be shy in expressing your real needs. Very often people who do not have your problems cannot understand your needs and tend to understimate or overstimate them. Dialogue and knowledge of each other is the best way to look together for new solutions.

 Always remember that offering a supporting hand or pushing a wheelchair can be a polite gesture of help, but it should never

be imposed, also because sometimes it can be counterproductive. Therefore, don't take offend, if your offer for help is refused. However, in case that your offer is accepted or your intervention is required, you will have to ask the person to explain you how you can be really useful, because nobody can know it better than the one who experiences the problem.

 Let's go back to the entrance accessabilty.

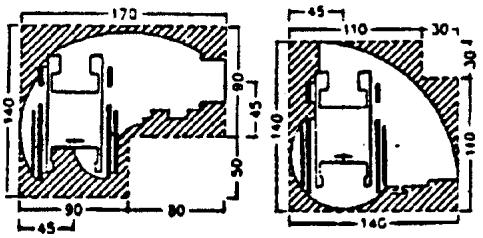
The welcome mat, for example can be an obstacle for the ones who have problems with stability or eyesight. If the mat has long hair it can create difficulties to the wheels. If it is embedded in the floor, but has been consumed or missing the problem is worse than ever. Fortunately, these problems can almost always be solved by moving the mat, rotating it, replacing it ;etc.

It is important to make sure that this small element will not become a big obstacle or worse a source of danger.

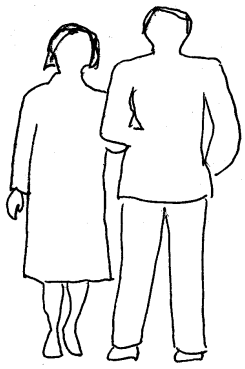
Internal ways (horizontal and vertical)

 After entering the building, the following problem is reaching the activity room using internal horizontal and vertical ways. Also in this case, instructions and full references are necessary. Besides for wheelchair users it is necessary a linear way wider than 75 cm. Such a measure increases to 90 cm or up to 120 cm and more, if turns or other maneuvers are necessary.

for example:



It is necessary to have enough space to walk with crutches or next to an assistant.



For people with balance or eyesight disorders, the greatest risks are represented by outstanding elements on the way, slippery floors, unforeseen height differences or unexpected obstacles, carpets, etc. Long or twisting corridors can cause exhaustion or confusion to many people.

What if the place is achievable by stairs only? It is necessary to look for a different site! However, if there are mechanical devices such as lifts, fixed escalators or elevators, it is necessary to know their characteristics, when and how they can be used, and if they are suitable to the people who will use them. In some cases, when the cabin of the lift is too small, those who use a wheelchair can replace it with an office chair on wheels, although not everybody can afford the transferring. We should not forget that some people suffer from claustrophobia. Thus, it would be better to avoid sites situated on high floors.

Internal equipment

The activity room should be supplied by equipment to allow all the participants to take part to the activities without any difficulties. The height and position of the worktables and chairs must be

adapted to include everybody. It will be better if the equipment is "mobile," but at the same time very stable. In a way that:

- between the chairs (chairs, armchairs, sofas) there should be enough space for a possible wheelchair;
- chairs and armchairs must be so stable that the use of their arms as a point of support when getting up or sitting, must not be at risk of overturning.
- In the same way the table must allow the inclusion of a possible wheelchair and offer support without overturning.
- Everyone should be able to choose the appropriate height and distance between the chair and the table.

Not for everyone armchairs and sofas are the most comfortable solution. A sofa that is too low and soft in some cases is not usable by people with problems to their hips or elderly. So, it is necessary, that everyone has the opportunity to choose what is the best solution for him/her.

Environmental conditions

 To make everyone feeling comfortable and taking part to the activities, environmental conditions are very important:

- natural and artificial lighting must not create shadows or dazzling (avoid also reflecting surfaces and counter light position);
- the adequate environmental temperature and moisture are not always obvious matters and not always air conditioning is necessary.

- good acoustics, with no background noises, echo or resound. Often all these elements can be changed with small temporary interventions. For example: increasing or decreasing the quantity of light that comes from the window, opening or closing of a window or of a door, that will regulate the quantity of hot or cold air. Using a dampener. eliminating sounds and noises (radio, TV, cellular phones...),.

Moreover, the situation can be, at least partially improved, by everyone by choosing properly where to take a place.

 There are also other factors, which influence the environmental well-being and in some way effect the participation: smells, smokes or various allergens, as pollen, glues, varnishes, powders, etc. Unfortunately not much can be done about the personal environmental allergies, you can only change the place of the meeting!

When you don't know the personal allergies of your colleagues, it is better to avoid too intensive perfumes, smokes, fragrances of candles and incense, especially the smoke of cigarettes (it will benefit everyone).

Objects and tools for work

 The equipment should take into account what we have recommended for visual and audio devices. The position of the screen, the colors and the graphic, the volume of the audio, the use of keyboards... All of these elements must be considered in relation to everyone and his/her position in the room which can effect his/her participation and interpersonal dynamics. For the same reason it is important to make sure to avoid difficulties. For example: natural or artificial light, which makes difficult to watch images on boards or screens or the continuous humming of a projector or other equipment which makes difficult to listen to other people in the room.

When the Study Circles ask for the use of tools and special equipments, it is advisable to ask for a consultation with a therapist who will detect the possible alterations or changes suitable for the participants in the activity.

A coffee-pause

 Allergies and intolerance to food products become more and more frequent. Before organizing any soft drink, snack, or coffee-pause, you must always ask the participants if there is some food or drink they cannot take. People with this kind of problems, should inform the organizers. Requirements of special menus become more and more frequent, so it should not be a problem for the organizers to provide a suitable menu.

Hygienic services

 The choice of the premises for the activities we intend to carry out must depend on the presence of suitable hygienic services for all the participants. Obviously every hygienic service has very different characteristics depending on the type of space we choose: a public venue or an apartment. For similar reasons, there can be different problems related to:

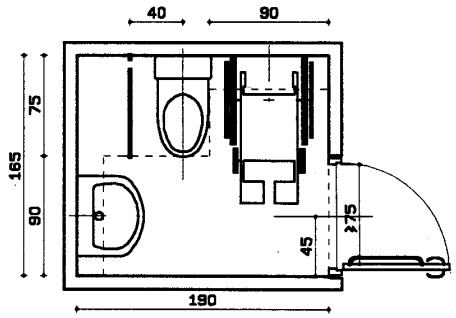
Management. Who is responsible for cleaning, supplying of hygienic paper and other materials, maintenance?

Use of hygienic equipment (which can effect cleaning, supplying materials, maintenance).

Problems depending whether it is a public or a private site.

In both cases the important things are:

The actual space available, between the hygienic services to guarantee maneuvering and accessibility to the toilet, the washbasin and to the door. Here you can see an example:



Consider that many wheelchairs demand bigger spaces and sometimes it is necessary to consider also the presence of a personal assistant and the subsequent necessity of additional space for using the hygienic service.

Usability of the toilet and the washbasin all the additional elements included like the type of faucets (pedal excluded) and flushing. **Cleaning and stability** of the toilet board which must be stable enough to support the weight of someone moving from and to the wheelchair without any help.

To ensure an easy and secure transfer, the height of the toilet must be adequate to the seat of the wheelchair. In some cases variable heights from 40 cm up to 50 cm from the ground can be necessary.

In temporary cases like ours, when many participants to the Study Circles meet for a limited number of times, the solution can be found in inserting a support (that can be bought in sanitary shops).

Sometimes the solution can be a connecting board between the toilet and the seat of the wheelchair, a medium height chair or a stool.

Of course any solution has to be discussed with the person who will use the service.

In case of public venues services it is necessary to be sure that correct maintenance, diligent cleaning and good functioning of the sanitary facilities, are provided.

Special attention must be paid to the good functioning of the alarm hand bell which has always to be present in public services but

which often doesn't work (sometimes because it has been deactivated). In absence of an hand bell or when the meetings are organized at home you can use mobile phones to warn about possible need for help.

Recognizability: Sometimes it can be difficult to detect the flusher or the soap dispenser especially for elderly or people with eyesight disorders. That is why sometimes it can be necessary to accompany some of the participants to show them where the facilities are and how to use them correctly. In particular :

The presence of sanitary accessorizes like: hygienic paper, detergents, napkins, hygienic paper-bags, a lavatory brush, and possible toilet seat covers.

All these elements can really determine the usability of the place and prevent its degradation. Unfortunately, in venues of public use often materials such as hygienic paper, napkins, detergents, etc are absent. Therefore it is necessary to be sure that everything is in order from the very beginning, otherwise ask the manager of the venue to take care of it.

It is very useful to have a dustbin with a cover in the toilet even when the group is meeting in a private house.

. **Absence of obstacles**

Mats (placed in the bath at home) or rags, buckets and floor polishers which are randomly "left" (in public services) can be obstacles, mainly for people with visual or balance disorders, or for the ones who use a wheelchair or other help.

Presence of handholds and stable supports

It can be necessary to have handholds or supports to change position (from standing to sitting and vv) Therefore in public services there must be handles near the lavatory pan. If you intend to gather in a private house and there are no such handles, you should check whether there are

other elements, which can be used with the same function (for example a window sill or a board of a washbasin). Always remember that it is necessary to guarantee safety to the people who will use it, it is certainly not advisable to use the napkins box , cupboards handles or other unstable elements.

Some temporary handholds can be used (the ones with suction caps you use for sailboats) but you'll have to be careful.

Stable auxiliary elements can be useful in a toilet for supporting objects which have to be handle such as sticks, crutches, hygienic paper, napkins or detergents, mobile phones or purses. A stool, a chair or a trolley can be suitable, if only it is not an obstacle for the users of the bathroom. Do not forget, that it is very difficult to find irreproachable lavatory for everybody. That is why it is always advisable to send in advance a detailed description of it to the participants to the meeting telling the length of the door, internal space, height of the lavatory pan. You can also propose the participants to check directly whether the facilities comply with their needs before starting the meetings. If you cannot find a suitable solution for everyone it is better to change the site for your meetings.


You know precisely your needs related to this context and you know how and to which extent you can handle them in a temporary situation. To avoid unpleasant surprises, in case you use a wheelchair, it is important, that you inquire in advance about sanitary facilities and possibly that you check it directly. In this way you will be able to consider possible alterations, or at the very worst a possible change of the site, with the organizers. Among the solutions you could consider to bring with you possible additional devices that you normally use e.g. a smaller wheelchair, asking the organizers to help you to transport it. Anyway even if you do not need a wheelchair but you have other kind of disabilities you should check the site and its facilities in advance.

Personal assistant

 Some disabled are helped by an assistant. The duties of the assistant are sometimes limited to accompany the disabled to the meeting site and back when the activity is over. Other times the assistant remains with the disabled for the entire time of the meeting to help him/her with writing, eating and some other possible necessities.

The personal assistant does not usually take part to the activities, so it is not necessary to include him/her in the activities but you will have to consider one more person in the site. The organizer, should always avoid addressing to the assistant instead of the participant, even when the assistant shows interest in the activity. In doing so, however, remember that the assistant is a person and not just a helping device.

Reference agencies

Of course it would be impossible to list every agency and institution you can address to, but remember that most of the times the participant is already registered at one of the many assistance organizations which can support you (for example providing a personal assistant or the transfer to and from the meeting place). Otherwise you can ask for help and information to your municipality.

Therefore, the disabled has always to be the first person to be asked for help, because he/she has probably already been in a similar situation, and will be able to plan with you any possible future interventions.

Internet and accessibility, a question of interpretation

Rita Bencivenga. Studio Taf, Genoa, Italy

Preface

An Italian law[1] (L.4/2004) Which defines the instructions for free accessibility to the Internet sites of Public Administration. According to this law, Web designers for the Public Administration must announce when web sites have been realized as a part of SCATE project.

In these pages, we address to organizers of Study Circles as well as to other formal or informal organizations, who are responsible for the realization of Web sites that describe the activities and the products offered by the Circle or by the organization. The first thing to remember is that the accessible version of the Web site must be graphically identical to the non-accessible version. Adaptations to the Web site should be made to meet the need of a sensitive and ethical Internet message which recognizes the right of everybody to access the information, to interact with others and to exchange knowledge. We'll try to explain avoiding technical expressions, why a site should be accessible independently from laws. Moreover, we'll supply some simple rules to guarantee maximal accessibility to all contents of the site. Those who want to improve accessibility of their site, can find more information on the web where there are numerous sources offering lots of information[2].

[1] *Law from 09.01.2004. L.4 "Means of accessibility to information technologies for disabled people", published in official gazette 13-17 January 2004.*

[2] We cite as a *starting point – the web site www.diodati.org of Michelle Diodati. The site contains technical texts of W3C, which are translated in Italian. In addition there are articles, manuals and different magazines, which pay special attention to accessibility. Among the texts, an excellent manual is „Web for all" by Antonio Capoduro (Antonio@capoduto.it) Econtent media edition, www.econtent.net ..*

We know that digital information is more accessible than the information in traditional paper format. Many disabled deeply appreciate these new technologies, because they allow the users to translate the contents of the Internet Web sites in different modalities. In other words, it is possible to translate and adapt electronic text into other formats (e.g. auditory description, Braille displays) depending on individual needs. Therefore, it is necessary to avoid technological barriers in designing of the Web site.

Accessibility to improve the interpretation

Before talking about the technical aspects related to Web designing, it is important to consider the common problems which have to be faced by disabled when consulting the Web.

When projecting a Web site, we think the user will be in a room or on a train or even outside with a computer, a keyboard and a mouse, taking it for granted that the user will see the screen and read through the texts. The truth is the "translators"[3] which help people to access the content of the Web site can be of many different types, not only to overcome personal physical difficulties, but also problems, tied to the environment (insufficient light, noise, etc.)

A monitor, set on a table in the middle of a room, wired to a keyboard and a "mouse", hard disk and other devices, is still the reality for the majority of people who enter Internet. However, there are other ways of using Web pages.

We are influenced by the use of software, which facilitate the creation of Web pages, focusing on the graphic aspects (Front Page by Microsoft or Dream Weaver by Macromedia are only two of the examples). Therefore we tend to think that everyone will see the Web page as we see it. We do not consider the fact that the page can be listened to or "translated" in a different way. When we project the actions

[3] *The technical meaning of „translator" is „interface- man-machine". The concept of translation is the key for understanding the concept of accessibility on the following pages.*

required by Web sites (for example, to fill fields or to click on icons), we think that everyone will use similar keyboards and similar "mouse". Actually, Web pages are not buildings with the same characteristics for everyone but concepts which have to be translated. In other words, we offer our own interpretation. We should consider that other people can choose different ways to interpret the same content.

The different "interpretations" of the same Web pages can also be generated by the different types of software for Web navigation, by the use of different operating systems or simply by the different performance of visualization. Therefore, if the Web designer want to reach a greater number of people, he/she should consider that the same Web page will be used in different ways.

It is also important to remember, that the content of the Web page includes not only text, but also images and graphics. Relatively popular is the statement that accessible Web sites means „written" texts. It is not true; the content of every page should be accessible to all. When we add images to a Web site we want to send a certain message. Even if the image is general or it has only aesthetic purposes, we should consider alternative descriptions for the ones who do not see the image to feel the same sensation, to have the same perception and to receive the same message.

We could add text or audio description to the picture that could explain the meaning of the image to those people who cannot make it visible. Here are some examples of descriptions that are not very significant for who can not see the image: "participants to a hockey competition"; "Cathedral of Orvieto"; " Name and Surname" of someone; and so on.

Physical difficulties and perception disorders

For those unfamiliar with accessibility issues pertaining to Web page design: consider that many users may be operating in contexts very

different from your own:

They may not be able to see, hear, move, or may not be able or find it difficult to process some types of information.

They may have difficulties in reading or comprehending text.

They may not be able to use a keyboard or mouse.

They may have a text-only screen, a small screen, or a slow Internet connection.

They may not speak or understand fluently the language in which the document is written.

They may be in a situation where their eyes, ears, or hands are occupied (e.g., driving to work, working in a loud environment, etc.).

They may have an early version of a browser, an entirely different browser, a voice browser, or a different operating system.

Content developers must consider these different situations designing Web pages.

Individuals with low vision.

People, who have eyesight disorders, use monitors like everybody else, but these people need an improved image quality (no matter if the image is a text, a photo or a picture). This can be achieved only by increasing the size of the characters or by using software, which increases everything that appears on the screen (named Screen Magnifier). Another technique of improving the image quality consists in using colors, which facilitate the watching of some parts of the video. As for the use of Internet, the opportunity of increasing the text can be of great help to people with difficulties in eyesight. This can be achieved by one click on “visualize” and by selecting "big" or "very big". As for to the choice of the colors, it is necessary to known, that people with daltonism

can confuse red and green. Therefore, when creating a web page it is better to avoid these colors and instructions like “click on the green button to continue”.

Blind people

Blind people don’t use monitors. Instead, they use devices, which „interpret" the content of the message in an alternative way. Screen readers, allow the message to be transmitted in audio format. In this case a so-called speech synthesizers or a braille display can be used. In comparison to traditional media, Internet and the web have contributed in a very important way to the transition from an operative environment to another, using devices of interpretation for not seeing people.

The first problem that blind people meet is that generally the Internet pages are projected to be visible (and also read through) at one sight, that embraces the whole page, while the devices, which have been described “interpret” what appears on the screen in a successive manner. Besides, in general, on the web pages, there are many images that are "manipulated" -- to produce actions (for example: changing pages). Audio or touch devices can find it difficult to translate the message, if the person who has realized the page, hasn’t considered accessibility.

Accessibility for people with eyesight disorders have not really been considered by web designers until other people have needed an auditory description of the key visual elements of a presentation. The new users of audio devices are people who need to read web sites while driving their car, or go through the internet using a mobile phone instead of the computer.

Hearing Disorders and Deafness

People, who have hearing difficulties, can read written texts which explain and replace sounds (for example, the subtitles in films).

Different difficulties can be met by the people with congenital deafness, who sometimes have problems in understanding the language and therefore written texts, especially in reference to abstract concepts which are explained in a difficult way.

People with physical difficulties

Differently from the previous cases, people who have movement difficulties like the impossibility of using or moving the upper parts of their bodies can easily read what appears on the screen, while they will find difficulties in using the peripheral devices of the computer (keyboard, mouse etc.) and commanding the machine.

The most frequent solutions are:

- keyboard with large keys, for people with difficulties in controlling the movements of the fingers.
- the use of very small keyboard for those who can make only limited movements with their hands (fingers);
- Plexiglas protections overlaying the keyboards to avoid casual pressure over a lot of keys simultaneously;
- adaptation of the keys sensitivity to avoid that a long or repeated pressure origins a repeated output, such as repetition of the same letter (aaaaaaaa instead of a); this is a way to take in consideration the user time of reaction and speed of movements.
- sensors can also be used, they are on/off switches that send a command to a particular device. They can have different functions and demand very different levels of strength. The sensors can be sensitive to eye movements or to lowering of the eyelids; activated by small movements of the head, pressing them or slightly touching them. Sensors could be single or multiple, which carry out up to five functions. Also in the

case of very significant movement difficulties, it is generally possible to individualize at least one voluntary action, which would not demand an excessive effort and associate its suitable sensor. These permit also interaction with the graphic subjects on the web pages, like buttons, icons, scroll bars.

- There are also pointing devices which replace the mouse. They are activated by a lever, or by touching a panel (sensitive and transparent panels which are installed in front of the computer screen), with movements of the head or of the mouth or by eye movements. It is possible to use more than one simultaneously. In these cases it is possible to use a special software which makes the keyboard visible on the screen and allows the control of sensors that have just been described.

- Voice recognition software to command the computer by speaking.

Web designers have to consider some adaptations which can facilitate those who have difficulties in movement. Allow them to avoid, when it is possible, the use of the "mouse" for reading very long pages (the contents of one page should appear completely on the screen); do not use too small buttons to be pointed at with the mouse; do not put too many links very close to each other.

What we have so far described, shows how technology can improve the accessibility to the web sites. Unfortunately the use of technology is often hindered by the structure of the web page if it has not been projected considering accessibility.

Applying Universal Design techniques, improves accessibility in "direct" way: examples of Universal Design are the subtitles for films or the use of additional images in support of audio explanations. Universal Design and technology make Internet more accessible to everybody, supplying alternatives for small mobile phone screens or for connections with limited wave bands and other less typical situations. There is no need to

remember that disabled have always to enter the sites using alternative and specific devices.

Accessible web pages are read by more people than non-accessible ones. A subject often brought up for convincing, web designers to project accessible sites, is that web sites with fewer images are more accessible to search engines and that there are some browser, which do not visualize images. Consequently pages with fewer images would be better positioned on the web. However we consider that this debate is more effective to the ones who realize commercial sites, or sites that are in competition with similar sites for gaining visitors. However small sites that research a specific subject, personal sites or sites of small organizations or associations, are less sensitive to these debates, because their target is not to be positioned at the top of categories of search engines or to be visualized in a faster way. One of the strongest subject in support of accessibility of these sites is that if many people visit the site, it can acquire many new clients/readers. This is a market-oriented approach which opens to easy objections (obviously almost never expressed in loud voice): the work necessary to project an accessible web site can be quite expensive and often disabled do not represent a significant percentage of the market. The subject, according to us, has to be approached from an ethical point of view .

Validation

There are special software that examine web pages researching barriers to accessibility, directly correcting the mistakes when it is possible, and assisting the author in case it is necessary to correct the pages personally. However the best solution is an estimation carried out by a human being, supported by reports which can be supplied by these tools. There are sites that have difficulties, in receiving the "seal" of accessibility, but that actually are accessible to all. It is important to remind, that these tools are based on guidelines, that are nothing but

recommendations. The final goal is not to achieve the seal which recognizes accessibility but to improve the accessibility of the site to all.

Guidelines for accessibility

Web designers who wants to project accessible pages, must necessarily consult the WAI (Web Accessibility of the Initiatives), for instructions. Accessibility in this context is not only for disabled but also for people forced to visualize the web pages in particular environments. In fact: “the basic purpose of these guide lines consists in the promotion of accessibility. Respecting the rules contained in the guide lines WAI, web will be easier to consume by all users, independently on the translator in use (for example, standard browser, browser based on speech synthesizers, cellular phones, personal computer for cars and so on) or on possible restrictions to which they can be forced (for example, noisy environments, scarcely illuminated or extra illuminated rooms, etc) . Following these guidelines will allow the users to collect the information on the web in faster way. These guide lines are not an invitation to avoid images or video but to make multimedia contents accessible to everyone. We’ll see now briefly 14 guidelines developed from WAI. The rules in the guide lines have different priorities:

[Priority 1]

A Web content developer must satisfy this checkpoint. Otherwise, one or more groups will find it impossible to access information in the document. Satisfying this checkpoint is a basic requirement for some groups to be able to use Web documents.

[Priority 2]

A Web content developer should satisfy this checkpoint. Otherwise, one or more groups will find it difficult to access information in the document. Satisfying this checkpoint will remove significant barriers to accessing Web documents.

[Priority 3]

A Web content developer may address this checkpoint. Otherwise, one or more groups will find it somewhat difficult to access information in the document. Satisfying this checkpoint will improve access to Web documents.

For the readers with good technical knowledge, we specify, that we'll refer only to the Web sites guidelines - Web Content Accessibility Guidelines (WCAG). We will not even hint at the guide lines based on XML - XML Accessible Guide lines (XAG); to those related to navigation software (User Agent Accessibility Guidelines (UAAG) - to those for programmers of the software for the creation of web pages (authoring): Authoring Tool Accessibility Guidelines (ATAG).

In simple words, we address to people who intend to realize a web site and have a basic knowledge of the code at HTML which allows them to use it even if using programs as Front Page by Microsoft, Dream weaver by Macromedia, etc., To people who want to realize a web site made by a small amount of pages connected between them and with the external by links, containing texts, images and downloadable documents.

WAI rules can be so summarized:

1. Provide equivalent alternatives to auditory and visual content.
2. Don't rely on color alone.
3. Use markup and style sheets and do so properly.
4. Clarify natural language usage
5. Create tables that transform gracefully.
6. Ensure that pages featuring new technologies transform gracefully.
7. Ensure user control of time-sensitive content changes.
8. Ensure direct accessibility of embedded user interfaces.
9. Design for device-independence.
10. Use interim solutions.
11. Use W3C technologies and guidelines.
12. Provide context and orientation information.

13. Provide clear navigation mechanisms.
14. Ensure that documents are clear and simple.

Use of symbols

It is better to avoid the accented vocals, and to use Standard ASCII (in the table standard ASCII there are numerical figures, capital and small letters, punctuation, arithmetic symbols and other symbols (@, # and so on). It was created in English; therefore it does not understand accented letters that do not exist in English language).

We remind besides that all problems, relative to the symbols, colors and contrasts are important only to the people who have problems with eyesight or difficulties in perception of colors. Avoid accurately compressed symbols (Impact, Juice, Matisse and similar), those stylized (Mature, Shining Handwriting and similar) it is better to choose characters such as Arial, Verdana, Tahoma, in 14 points.

It is better avoiding italics while there are no problems with bolt. Blind people do not have problems, as long as the "translators" manage symbols and colors perfectly (even white character on a white background would not cause minimal problem).

Name of files

Each page of the site is a file in HTML, with its own name. It is necessary to choose names for the files which are no longer than 8 letters (in small letters) and the extension should not be longer, than 3 letters (not html but htm). Obviously it is important that such brevity does not compromise understanding as much as the contents in a file (to avoid page01.htm, page02.htm, and so on). Avoid special symbols, except for the letter “_” (underscore) .

Optimization

Do not create a site optimized for a specific version of browser or a particular video resolution. Browsers are very different from each other and not all of them are able to visualize the web pages in the same way. For example, if the page is optimized for the resolution 800x600 and the user has set the monitor in the resolution 640x480, he will have to continually act on the toolbar to visualize the page (unpleasant inconvenient for everyone but especially, for the one who has difficulties in using the mouse or keyboards).

Times of downloading the page

Ideally the pages should not weight more than 32 kb, code and objects included, to be suitable also to old modems and slow connections. Besides if the pages are light, they can be read quickly and the user can decide if he want to read it all or to go on. If you insert downloadable documents, they should be light. Weight and time of downloading should be indicated.

Connections

Creating connections, it is necessary that the meaning of the text is independent from the context. If it is not possible, use the attribute “title” to make it consequently significant. Better to avoid the sign “click here” because it is more polite to give a description of the contents of the link and because if a user is listening to the page, it is difficult to understand where “here” is.

Frames

Do not use the frames. The technical explanation would be too long for this context. You will find on the specialized texts and on many Internet sites further details about what prevents a blind person to use pages with frames. In this context we just guarantee that the sites with frames are not accessible, therefore they must be avoided.

Choice of colors

There must be a strong contrast between the background and the written text. The text and the graphic of the site should be easily understandable even when they are visualized in black and white. Avoid relying on colors for giving information: people who can't see the difference between some of them (for example green and red in case of people with daltonism) would not have the necessary references.

With ageing, we all become less sensitive to the color blue, and the combination red / blue creates an annoying effect on the screen, which makes reading difficult.

Objects

Except for the text, our pages can contain images, audio or video files of, tables, forms, and so on in other words "objects". How the objects become accessible? We have to provide equivalent alternatives to auditory and visual content: the description of images, descriptive texts for films, and so on.

If this is not possible, provide equivalent information on an alternative accessible page. In this case it is necessary to be sure that the visitor is able to move easily in every moment from one page to another.

Animations

Animations with frequencies between 2 and 5 strokes in a second can be dangerous to people with epilepsy. In general, it would be better to avoid gif, animations, refresh or other objects, commands, applications or tag, that can provoke unexpected movements in the pages.

Tables

It is complicated enough for a non professional to make accessible tables. We recommend not to use tables for formatting the text so to avoid problems with pages which are otherwise accessible.

Accessibility of the web: a special case, people with aphasia

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Precondition

Acquired cognitive disabilities have been studied very little because of the big variety of situations included in the general term “cognitive disability”. This group includes in fact people who suffer from cognitive restrictions associated with ageing, learning difficulties, intellectual retard and neurological pathologies, in particular people with information processing problems (for example cranial trauma), isolated cognitive deficiencies (for example amnesia) or learning or language disorders. An acquired cerebral harm can cause a big variety of symptoms which change from individual to individual. They effect the ability of co-coordinating the movements, speaking, reading, remembering, reasoning or decision-making…

Internet users who are affected by this type of disability will find it difficult to access and understand too complicated Web pages as well as Web pages with too fast moving elements, because their residual abilities do not allow them to catch all the aspects of the information.

In this case, an image can be a better way to communicate than a long written explanation.

A special case, often ignored when talking about Web accessibility is represented by people with aphasia (for information you can visit the site of Alias association www.aphasiaforum.com, it is the first and unique Italian portal on aphasia).

It is a communication disorder caused by a cerebral harm often done by an ictus. Aphasia can effect the ability to speak, to read, to write and to understand. In some cases additional visual problems connected to the ictus or to old age; movement difficulties which hinder the use of the mouse or inactivity of one of the body sides have to be considered.

Thanks to its structural characteristics the Web offers several opportunities to people with language disorders. If these opportunities are developed, they will change the situation in the field of right of information for people with aphasia. The use of icons or images to convey a message which is so common in the Web, represents one of the most effective ways to overcome language disorders. Besides internet offers the opportunity to visualize information which would be otherwise fast conveyed through the auditive channel (imagine a telephone conversation), which is of utmost importance for people who need long time of information processing.

Finally, it is important to remember that despite what detractors think, internet offers, through its mailing lists, forum and chat lines a unique opportunity for socializing. Even if in Italy intellectuals are still reflecting on the meaning of this “cold” type of communication, in the US millions of people with aphasia and their familiars use the Web to exchange information and advice.

Therefore it is of utmost importance that on-line information are accessible to people with communication disorders.

It is necessary to devote a chapter to this kind of disability because the general accessibility guidelines are not completely applicable to the sites addressed to people with aphasia. In most cases the Web sites addressed to people suffering from aphasia, must have very different accessibility characteristics. However Web sites accessible to people with aphasia could be useful also for people with different types of language difficulties like people suffering from dyslexia or people with a very low education level or people speaking other languages.

In Italy there is still very little awareness of the necessity of an information

system which complies with the needs of EVERYONE.

Guidelines

As far as it concerns information on the use of technologies by people with cognitive disability, Association ALIAS has developed its own site based on the result of Rehabilitation Engineering Research Center on Universal Telecommunications Access of World Institute on Disability (WID) and on the project “ the Web access for people with aphasia ” , Linda Worrall and Jennifer Egan of Communication Disability in Ageing Research Unit, Department of Speech Pathology and Audio logy, The University of Queensland .

There are many elements, to consider like the inexperience of the majority of elderly in using a computer and the economic difficulties connected with unemployment and thus the impossibility of using technologically advanced tools. Considering the difficulty the person with aphasia can find while processing the information offered on printed-paper or on the screen, it is necessary to defend the right of information for this category of subjects. Therefore we should change the way of writing and representing information, so that people with aphasia can understand them. Internet, fortunately, offers some additional opportunities, for example, the icons used by many browsers can improve the abilities of navigation of many people. These are general guidelines on the accessibility of web sites for people with aphasia.

1. Write with simple words, in big size letters.
2. Leave a lot of white space (don’t fill page with text).
3. Use images, which help to explain the text .
4. Allow a long time for reading (in case of texts in movement).

Formatting

- Layout of one column (max. two) with wide margins between the columns. Narrower columns will reduce the difficulties in

reading long lines. The use of white spaces makes the pages, easier to read. Use of margins helps to outline text sections.

- Frequent titles divide the contents in different unities which are easier to read.
- Avoid the use of advertising banner and trade marks which can distract the viewer. These objects could reduce the ability to locate and to use the toolbar.
- Avoid graphic animations for the same reason.
- Convert the images in thumbnails, where it is possible to minimize the necessary time of downloading of the page and to reduce necessity of moving in very long pages.
- Style of the letters: limit to easy, readable styles, (for example. Arial, Tahoma) with variable size from 14 to 18, preferably black or dark blue on a white or very clear background.
- Avoid yellow, because elderly would see the text as through a yellow filter.
- To facilitate the recognition of the pages, use different background colors and different graphic styles.

Contents

- Simple and brief information.
- Use short phrases, avoiding very long or uncommon words.
- Where it is possible, use pointed and numbered lists to create link lists. Avoid including links in the text.
- Provide equivalents for the text (for example drawings, photos)
- Tag "alt" to add simple descriptions of the images.

Elements of navigation

- Organize the pages in a simple way, with the crossbeam localized always in the same point in each page.
- Don’t put more than 6 links in a crossbeam of navigation
- If necessary use also big size buttons to facilitate pointing with the "mouse".
- Facilitate orientation, supplying detailed information on the position.
- Use internal links to reduce the necessity of flowing of pages.
- Provide a link with the webmaster on each page to encourage feedback .

Important note: some sites provide “text only” equivalents for disabled. In case of people with aphasia this choice is unacceptable because in this way the value of the visual and audio information is lost.

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