Seven practical points for facilitating workshops with blind and visually impaired people

Knowledge Unit

This project has received funding from the European Union's
Horizon 2020 research and innovation programme
under grant agreement No 78799

Table of contents

I. What are these seven tools for?

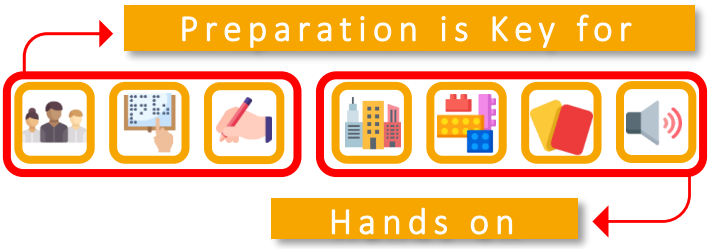
The **prominent workshop design** is mostly focused on sighted people, leading to the **exclusion of the low vision or blind users**. Even though the goal might be to develop a product or service, which can be used by everybody, a significant group of stakeholders is unable to participate in the innovation process, leaving out their wishes and perspectives.

This is why within the **LIVING INNOVATION**[1] project **seven tools** were developed and successfully tested, through which people with visual impairment as well as blind people can be **included in the innovation process** right from the start.

I.I Information about this Guide[2]

What is expecting me?

The first three chapters deal with topics, which are especially important to think about **before** conducting the workshop. Any successful workshop is a carefully prepared one. The following four sections describe hands on tools, which are created to enable the inclusion of low vision and blind people in the innovation process **within** the workshop. Finally this guide ends with some helpful tips of what to do and what to avoid when interacting with visually impaired or blind people.



Essential background knowledge

People with visual impairment are not automatically unable to interpret visual impulses. For instance, people with low vision perceive less than 30% of what sighted people see, but through training, they can still process this information. Some people however perceive less than 5% and cannot mentally evaluate visual impulses. The use of the residual visual ability differs from person to person and sometimes even depends on the daily form.

[1] For further information about the Living Innovation Project, feel free to visit our website: www.living-innovation.net

[2] This document's design is following accessibility guidelines.

1. Groups: To split or not to split?

In most workshops, visually impaired and blind people are divided into separate groups solely based on their residual vision. However, this division can lead to **products and services not being adequately developed as important stakeholders are not included** in the innovation process even though the outcomes are affecting them as well. Sometimes though it is more efficient to only involve certain groups of people with the same characteristics. Therefore, the decision on group division should be made consciously before the start of the workshop.

1.1 Before the workshop consider these questions

- What is the purpose of my product or service?
- Who am I designing it for?
- **Does it make sense to split up the group?**

1.2 What does this mean in practice?

Imagine you are a business, which designs **home appliances**. You are selling either TVs, toasters, ovens – anything that individuals purchase by themselves. It is no secret that people in general buy such products according to their preferences, wishes or needs. In these cases, conducting workshops with **homogeneous groups** makes sense since this setting is helpful to **identify specific needs**. Whereas low vision people might need monitors with large texts on them, such design features are useless for people with no vision. Instead, they would possibly prefer different tactile features.

Mixed groups on the other hand are beneficial in the process of designing devices, which should be **accessible for everyone**. Think about, ATMs, ticket machines or packing stations. Anything that is part of **public infrastructure** should follow the idea of "accessible design for all". In this case bringing diverse people together helps addressing different interests and needs in the design, promoting accessibility and finally equality.

2. Accessibility of Information

As a next step, it is important to consider the accessibility of information within the workshop. There are various helpful guides available on the internet for more specifies regarding the right format, fonts and colors of documents. The focus in this section lies on the techniques of **how to create documents**, which are **accessible for all participants** within the workshop.

Inclusive documents contain large print as well as braille

2.1 Which techniques are there to create inclusive documents?

1. One option is to use **special printers**. The mechanical printer is connected directly to a computer and prints a plain text file in a large font. Afterwards, the printer punches dots onto the paper. It is important to note that the process has to follow this chronological order; otherwise, the printer will flatten the dots. Although this method has been around for a long time, these printers are still quite expensive.

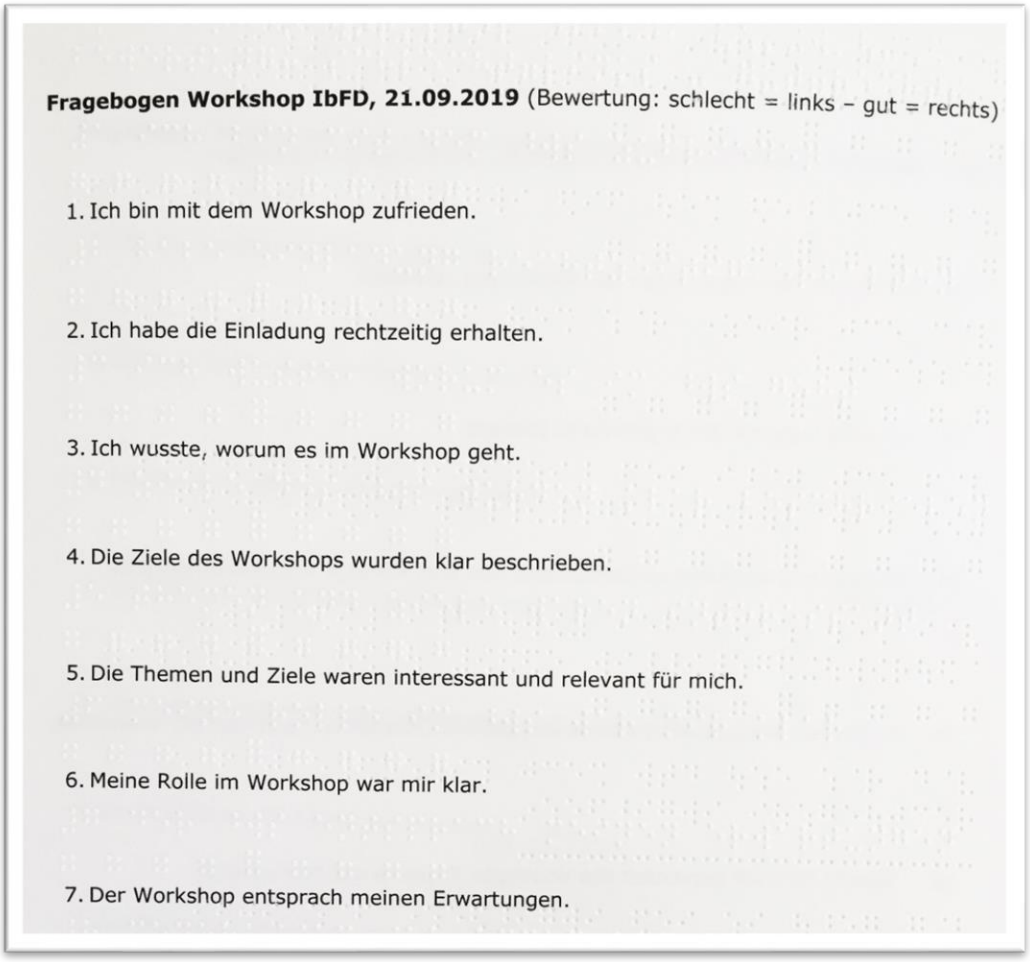
2. If you do not want to buy a mechanical printer yourself, you can alternatively use a **printing service**. There are numerous providers for this on the Internet (from postcard printing to text files).

3. Another option is **Do-it-yourself printing** in Braille. There are fonts for computers that represent Braille in graphics. The grid of points on the screen is automatically implemented. If it is printed on special paper such as **swell paper**, it can be heated in the oven by which the printed and thus black points rise. This technique is ideal to display Braille or even drawings. DIY printing is the economic alternative, but it also involves more effort.

2.2 How could such a document look like in practice?

There are numerous options in how to make documents accessible for **visually impaired, blind and sighted people simultaneously**. The image below shows an innovative questionnaire developed by Siemens.

Instead of ticking a box, the desired **selection is made by pressing the element** flat or alternatively mark it with a pen. If one wants to select "yes" in that questionnaire this can be done by simply pressing the element for "yes". The **questions are also marked**. So if there are blind people without braille knowledge, the moderator just reads out loud the question and the blind person counts down to the fourth row with his or her fingers.



Fragebogen Workshop IbFD, 21.09.2019 (Bewertung: schlecht = links – gut = rechts)

1. Ich bin mit dem Workshop zufrieden.
2. Ich habe die Einladung rechtzeitig erhalten.
3. Ich wusste, worum es im Workshop geht.
4. Die Ziele des Workshops wurden klar beschrieben.
5. Die Themen und Ziele waren interessant und relevant für mich.
6. Meine Rolle im Workshop war mir klar.
7. Der Workshop entsprach meinen Erwartungen.

3. The Recorder

A popular way to generate ideas in workshops is to work in small groups. Often, after the idea collection phase the group presents their outcomes are to the plenary for discussion. However, there is a **risk of losing ideas** if they are not noted down during the brainstorming phase. To prevent this from happening when working with visually impaired or blind people, it is advisable to **provide each group with an assistant** during the brainstorming phase.

The assistant should influence the process and results as little as possible

The wording should come mostly from the participants themselves. The assistant's job is to note everything down, listen and ask questions like:

- "What should I write down?"
- "How should I formulate this?"

3.1 There are three main types of assistants

When the ideas are presented to the plenary, there are three main types of how the assistant can be of support.

1. **The Prompter**: Assistants taking the role of the prompter only support the presentation by stating which points have not been mentioned yet. They provide keywords and say nothing about the content itself. This is actually the best method because the participants work mostly independently.
2. **The Interviewer**: If the first method is not feasible, then the recorder should increase the amount of assistance by reading the contents of the cards and asking the group how they came up with it or whether the group wants to say something else.
3. **The Presenter**: If both options do not work out well enough, there is still the option that assistant shares the results in the interests of the group.

Which approach is the most suitable depends heavily on the group itself. It is recommended to try the "prompter approach" first, and steadily increase the amount of support if necessary.

4. Orientation through 3D Models

Visually impaired and blind people often have **difficulties in comprehending spatial arrangements** or defining them by themselves. **Tactile 3D models** can help to understand the world better by providing orientation through touch. For instance if your buildings need to be discussed, in terms of how to redistribute a floor or plan it, the use of a 3D model is ideally suited.

3D printing can significantly benefit blind people's education, vocation and life style

When creating 3D models, the required accuracy plays an essential role. Model houses are too filigree structured and too complicated. Compared to Lego, models from the 3D printer have the advantage that they can be represented better and more precisely in three dimensions.

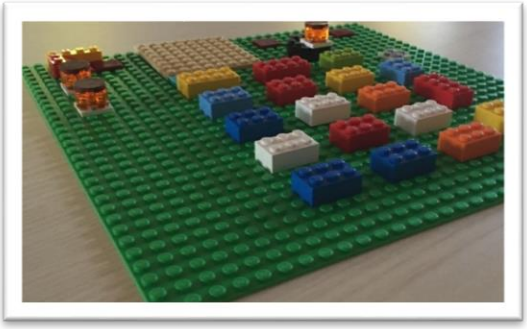
The creation of such a model takes a lot of time, but it can still be useful if you work longer on something or use the model more often. A flexible conversion of printed 3D models during the workshop to discuss variants is, however, not possible.

4.1 Various Applications

Apart from buildings, 3D Models are useful for numerous alternatives. For instance, maps can be printed showing interesting features or even different figures. They can also include Braille descriptions. 3D models can furthermore help regarding the interoperability with assistive technology.

5. Building Blocks

3D models are not the only way to increase the **understanding of spatial arrangements**. By **building models** with building blocks, visually impaired and blind people can even design technical devices.



One advantage compared to hand drawings is that these kind models can be easily assembled and reassembled. **Stones that allow turning and folding** or that have certain shapes are particularly suited for building models.

It is important to **pre-sort the stones** according to their respective importance in preparation for the workshop. In order to reduce the participants' search time for the stones they want, a **handout for the sorting box** can also be helpful.

At the beginning the **meaning of each stone needs to be defined**. In one of the LIV_IN Labs, blind and visually impaired participants designed a model of a radio device. Therefore, before starting the building process the facilitators defined that flat stones without knobs at the top are buttons, stones that looked like a roof were switches and round stones were dials.

The construction of the models takes place on a large grid plate allowing **free design of dimensions.**

Lego building blocks with imprints such as faces or figures are unsuitable. It must be possible to **derive their function from the form**.

6. Creative Impulse: Touch

Workshop facilitators often utilize various tools aiming **to stimulate the creativity** of their participants. It is common to use visual impulses such as images or ink stains to spark peoples' imagination. Alternatively, participants engage in collaborative exercises to enhance their "out of the box" thinking. However, stimulation can also be derived to an equal amount from touch.

Traditional tools could be advanced by adding more inclusive elements and features. For instance, cards are a popular tool in workshops in the context of brainstorming or mind mapping. By applying a few features, the brainstorming process does not necessarily need to undergo incremental change.

6.1 Adding Features to Cards

By using **strong and contrasting colors** such as bright yellow, red, dark blue, people with low vision have an easier time separating the cards from each other. For people with no vision the corners could contain **embossed characters**. Also for cards with text on them, it is helpful to **cut an edge** in order to signalize which side is on top

6.2 Sketching Ideas with Tactile Foils

When talking about ideas, drawings sometimes show more than a thousand cards could. This problem can be overcome by using a tactile foil, through which **quick sketches can be easily created**. This is a plastic film placed on a rubber mat. If you draw on it with a ballpoint pen with strong pressure on the fleece, the lines are curled and are therefore easy to feel. Like this, participants can easily pass sketches back and forth between them.

7. Creative Impulse: Sound

Another promising approach unleash the participants' imagination acoustic impulses. Noises and **tones trigger associations in people**, even if they cannot be clearly assigned. In this way, like pictures, they can be used as a creative input.

Acoustic impulses can be stimulating for

visually impaired or blind people as well as sighted people

Audicons are short acoustic elements recorded in everyday life. These noises are often not clearly identifiable, making the experience of figuring out what it is or where it comes from even more exciting. The imagination of the participants is particularly challenged if the tones are not immediately recognized.

Numerous sites on the Internet offer such noises. Alternatively, you can record them by yourself (for example, throwing crumpled paper into a trashcan).

7.1 Where should I put attention on?

- **Audio quality** is extremely important. Therefore, if it is possible use stereo or surround recordings. The spatial acoustic arrangement can also trigger emotions, especially in people who rely exclusively on hearing.
- When choosing the sounds, it is important **not to rely on film titles**, music titles or well-known acoustic elements from companies, as these triggers are strong and clear associations.

II. Online Workshops for blind and visually impaired People

Web participation is a challenge especially for participants with disabilities e.g. blind persons or persons with low vision. Interestingly the switch to web based workshop had a positive impact on the willingness to participate over the complete series of workshops, because time and costs for travelling were saved as well as the organization of a barrier free travelling.

II.I How to overcome technical challenges?

- Identify an accessible meeting tool.
- Configure and test the accessibility of the tool.
- Provide special guidance for Screen Reader or Screen magnifier users.
- Support the participants with the installation and configuration of the tool.
- Help with testing the microphone, headset and camera.- provide keyboard shortcuts for main functions (mute, ...).
- Allow alternative telephone access (fall back strategy).
- Provide technical assistance before and during the web meetings.
- Simplify the login procedure as much as possible e.g. by coding access code or password in the invitation link.
- Avoid unnecessary or misleading information in the invitation e.g. costly US dial in numbers.
- Help improving the sound quality!

II.II How to overcome organizational challenges

- Split the workshop into shorter meetings with less participants.
- Focus on one clearly defined topic at each web meeting.
- Reserve more time and think about breaks.
- The use of tactile materials or adhoc tactile drawings or individual explanations are not possible.
- Everything on the screen has to be verbalized and repeated several times if deemed necessary.
- The split of the conference into sub rooms is always time costly and participants are often lost.

III. Dos & Don'ts

III.I What should I consider when meeting visually impaired or blind people?

Finally yet importantly, these are some DOs and DON'Ts when it comes to interacting with visually impaired or blind people. These tips are not only helpful for workshops but also for every-day-life situations.

DOs

Blind people sometimes need help. If you want to help, approach the person and offer help first, not just touch the person.

Use normal language. Terms like "see you again" are not a problem.

Blind people recognize people by their voice. This is why it is more than just polite to present yourself with your name before you speak.

E.g. at web meetings you can start your speech briefly with your name.

When giving a presentation, verbalize all-important information.

It is very useful to provide documents in an accessible format before a presentation. For older participants audio books or another audio format is suitable.

Provide an acoustically quiet environment to increase speech intelligibility (e.g. silent projector, quiet air conditioning).

Make sure that there is sufficient lighting, as many blind people have minimal residual vision.

Describe the position of important facilities in an unfamiliar environment, such as table arrangements, lectern, emergency exit or the route to the toilets. Describe the positions precisely and if possible place yourself at the given position during the description so that acoustical orientation is possible.

DON'Ts

Address directly the blind person, not their companion. When a blind person goes to a public place like a restaurant, often the accompanying person is asked what the blind person wants. This is uncomfortable and discriminatory for a blind person.

Never touch or distract a guide dog from his job while he is on duty.

Avoid disability-specific or discriminatory language.
E.g., "Hear you" instead of "See you".

Do not make assumptions about what the blind person is not capable of doing. Nowadays many blind people also use a smartphone or "watch" television.

Persons often assume that all blind people can read Braille. In fact, only about 25% are able to read Braille. The main reason is that with increasing age, the sense of touch decreases and learning becomes significantly more difficult. Therefore, individual words such as room numbers may also be offered as tactile normal letters in hotels or train stations. The tactile letters and numbers are called pyramid fonts. The application of tactile points can be used to mark certain positions and cutting off the top right corner, e.g. of a business card, allows the object to be correctly oriented.

Avoid tripping hazards such as cables or luggage.

Avoid open cupboards or windows where you could injure yourself.

For further information, please click here and visit the LIVING INNOVATION website: