

Empathic Modelling

What does this technique do?

With empathic modelling the designer/developer tries to put themselves in the position of the disabled user. It may be very instructive to try to operate a personal computer with a mouth stick, or to use a communication device without being able to hear. To move around a building in a wheelchair may give you a lot of surprises the first time you try.

It is in many respect an informal technique, since there is no exact prescription on how to do it. One of the many advantages of the technique is that those that need the information, can get it directly without the mediation of a user. There are, however, a variety of possible uses, also combining this with other approaches.

When to use it

Since the costs of doing an informal Empathic Modelling trial may be very small, it should be carried out whenever it is suitable. However, one must remember that there is a big difference between the situation an investigator puts himself in, and the situation of an actually disabled person.

The method is easiest to apply when one is designing for people with motor or sensory disabilities.

The approach can be used in early problem definition stages of design to

SPECIAL CONSIDERATIONS:

General ▶

Visual Impairment ▶

Hearing Impairment ▶

Mobility Impairment ▶

Lack of Motor Control ▶

Mental Impairment ▶

▶ See Sources of Further Information

To navigate in an electronic document only by means of sound is a very interesting experience the first time you try.



increase the awareness of designers of the implication of design for specific disabilities. In addition the technique could be of value for preliminary evaluation of products in order to detect likely problems with equipment.

What resources are needed?

The costs involved will vary, it all depends on the ambition of the study. Getting developers to evaluate disability over extended periods is time consuming, but good results can be obtained by empathic modelling for an hour or two.

Who can use it?

There are no specific requirements for education or training for using this technique.

Who are the informants?

The informants are usually the designers/developers themselves. In some cases people with some special background (like architects) may gain new insights when using this approach.

Special considerations

The most important thing to understand is that a disability “simulated” in this way will have a lot of differences from a real disability.

First of all there is the persons total life situation to consider, whilst the real disabled person will continue to stay disabled, an investigator can walk out of the situation after the trial. One should remember that the disabled person may have lived with the disability for years, and it is an integrated part of his/her life. There is also the possibility of having adapted to, and learned to compensate to some degree for the disability.

One should be aware that there is almost impossible to simulate all the details of sensory loss or motor impairment. The residual capacities usually vary considerably, and it is very difficult to simulate for example a hearing loss in some frequency range or an impairment due to losses in some specific fields of vision.

Procedure

There is no specific procedural requirement for using this approach. Before doing an empathic modelling, however, one should consider these points:

- How long should the trial last? Should the participants be allowed to get accustomed to the situation, and to what degree?
- How important is “hi fidelity”? What are the technical options, and the costs and benefits associated with different degrees of accuracy?
- The tasks and situations to be tried out should be carefully chosen and described in advance of the trial.
- Is it important to let the participants also try out the context of use of products? The context may for example imply getting in and out of the building, going to the bathroom etc.
- How to record the participants reactions?

The results of an empathic modelling trial should be written down, even if it is only the unstructured impressions of the participants, so that others can share the insights. One should consider to let the participants discuss their experiences in a group that could also include disabled persons having tried out the same situations. Videotaping empathic modelling sessions can also be useful, as in this way the developer can see how they reacted to their simulated disability.

Simple Empathic Modelling Equipment

Simple empathic modelling does not require sophisticated equipment. The following are some ideas and developers will undoubtedly think of others for themselves. Organisations dealing with disability groups may also be able to advise on this matter. As a word of caution, as a general rule a developer should not be allowed to simulate disability by themselves, as there is likely to be an increased risk of accident. People simulating disability should therefore be supervised, and this is particularly the case where visual disability is being looked at.

Visual Impairment

Smearing the lenses of an old pair of glasses with Vaseline can do much to simulate the kinds of visual impairment experienced due to cataracts. A more permanent pair of glasses can be made by taking an old pair of plastic lensed sunglasses and rubbing them with fine emery or sand paper. This has the added advantage of simulating the greater need for light the elderly eye needs. Commercially available glasses simulating other types of visual impairment can be obtained from the Royal National Institute for the Blind (RNIB) in the UK, and are likely to be available in other countries as well.

Total blindness is a less common problem than visual impairment, but is much easier to simulate. A scarf or bandage tied over the eyes will usually suffice.

Hearing Impairment

Hearing impairment can be simulated in a number of ways, with wax or plastic earplugs being the simplest to simulate a general loss of hearing. Tinnitus can be simulated by recording white noise on an audio tape and playing it through a personal stereo.

Mobility Impairment

Some of the effects of arthritis can be simulated fairly easily. One technique you can use to reduce manual dexterity is to tape buttons from clothing to the backs of the joints on the fingers and knuckles and then wear gloves. The buttons make joint movement difficult and painful whilst the gloves reduce tactile sensitivity and make the hands larger.

Walking can be made uncomfortable by taping small objects to the soles of the feet e.g. hard peas or plastic beads. Leg movement can also be restricted by large elastic bands being used to hold the legs together, and

through the use of a wheelchair some of the aspects of the paraplegic condition can also be simulated.

Lack of Motor Control

It is difficult to simulate a lack of fine motor control easily in empathic modelling, but one technique that can be tried is to use the product in an environment where there is considerable vibration or movement. Trying to use a product on a bus or train or in a car, might give some insights as to how difficult it might be to use the same product if you had a lack of fine motor control, but clearly the two circumstances are not identical.

Mental Impairment

It is difficult to simulate cognitive disabilities using empathic modelling, though many reduce their cognitive abilities on a temporary basis by consuming alcohol and other drugs or undergoing sleep deprivation. Safety is obviously a key consideration here and as a general rule we would not recommend consuming alcohol in order to evaluate products. Being drunk can give some insights to certain types of cognitive dysfunction as short term memory can be effected, and in addition the ability to plan and execute complex series of motor activities is reduced.

Some cognitive problems are possible to simulate in part, for example some of the effects of dyslexia and other reading problems can be simulated by giving a subject text which has been constructed to emulate the sorts of reading problems such people have e.g. transposition of letters and words.

Another simple technique which might be of value to simulate problems with cognitive functioning is to give oneself a number of tasks to perform at the same time. For example trying to subtract numbers at the same time as using a product. Try subtracting 7 repeatedly from 100 whilst engaging in another cognitive activity such as trying to remember a telephone number and see how you feel!

Sources of Further Information ◀ ◀ ◀ ◀ ◀ ◀ ◀ ◀

Pastalan (1982) simulated age related visual changes to allow designers to participate in a variety of everyday environmental tasks as if they were affected by these normal physiological ageing processes. The technique used was for the designers to wear spectacles that simulated the effects of reduced vision by diffusing and attenuating the light passing through them. The procedures followed involved the participants wearing the spectacles for a period of approximately one hour a day for a period of

six months. An initial adjustment period of approximately six weeks was allowed for the participants to become accustomed to concentrating upon what they can see rather than the confusion caused by sudden visual deprivation. Following this, participants kept a log detailing daily living experiences such as the legibility of various informational sources, the effects of lighting and a variety of safety oriented factors. Pastalan applied this technique using architects with a view to eliciting the design requirements of the visually impaired in different environments, but the technique could equally well be applied in a variety of different design scenarios.

PASTALAN, L. A. 1982, Environmental design and adaptation to the visual environment of the elderly. LISS, A. R. Aging and human visual function. 1982, pp323 - 333