

# Expert Opinion

## What does this technique do?

Expert Opinion is a relatively informal technique which can be used to serve a variety of purposes, and may be used to assist in problem identification, in clarifying the issues relevant to a particular topic, and in the evaluation of products. Individual experts can be consulted, but it is usually better to bring groups of experts together so that a wide range of experience can be drawn on (See Group Discussions)

## When to use it

Expert opinion is often used to identify potential problems with products before they are released for more comprehensive evaluation, but can be used at any state of design. However it is important to ensure that those experts consulted have no prior involvement or interest in the design of the product to be evaluated, as otherwise it will be difficult to obtain impartial views.

## Who can use them

In principle there are no specific requirements for the participants, apart from them having some expert knowledge of the area under discussion. This can include representatives of user organisations, care professionals, and any other relevant parties e.g. experts on the design of products for elderly and disabled people. For complex issues it can be useful to bring

such experts together into discussion groups which are also multi-disciplinary, so that different perspectives and viewpoints can be aired.

## What resources are needed?

Depending on the problem to be discussed, an expert opinion session can commonly take approximately half a day to carry out. Where products are to be evaluated it is important to make the setting where the product is to be used as realistic as possible, and allow the expert(s) hands on experience of use. It can be useful to prepare check lists of the areas that you want experts to consider, and also to provide sample activities or tasks to guide the experts to examine all relevant aspects of the product. A simple task analysis can assist in this process. Also a short questionnaire for experts to complete after they have used the product can be a useful way of summarising the findings. Expert opinion is often gathered in a group setting, which has the advantage of also allowing different perspectives or opinions to be discussed. This can be particularly interesting in areas where no clear cut solutions are likely to be found, as stimulating discussions can result.

Group discussions are commonly arranged to last for two or three hours, where complex issues are being discussed meetings of one or two days duration are possible. Shorter meetings can often be more effective than longer meetings as many people have difficulty attending for more than two or three hours, both in terms of time availability and the concentration needed. This is true for the fully able participant, and for certain disability groups even shorter sessions will be required, and a number of short discussions rather than a single large one might need to be considered. The preparation for a group discussion can also take time, and it can be particularly time consuming if a number of people have to be consulted regarding their availability to take part.

Experts may be prepared to give their time to worthy cause for free, but expenses such as accommodation and the travel costs of participants may have to be covered in many cases, as well as the costs of refreshments and hiring of rooms. Many experts may also be prepared to be paid in kind e.g. by having access to published reports or receiving other benefits. In research projects it may not be necessary to pay for the use of experts time, but in commercial developments it may be better to expect that experts will need to be paid in some way, particularly if they work for commercial rather than public sector organisations.

## Who are the informants

Experts on the user group, the services involved or the technology involved, may have valuable information regarding the design of the product. They will normally be found in universities, research organisations, institutions and competence centres for disabled people. Care should be taken when putting domain experts in groups with those with less formal qualifications as there is likely to be a tendency for such experts to dominate discussions. This can be a particular problem when male experts join discussion groups with female participants who are perceived to be of a lower status.

## Special considerations

Participants such as domain experts and other professionals may have particular difficulties in making appointments at short notice and therefore advanced planning is needed to ensure that experts can be brought together at appropriate times. Experts may also be dispersed geographically making it difficult for them to arrange to meet in one place. One option to explore where a portable product is to be evaluated is to take the product to the expert rather than the other way round. One should also not assume that experts will not have some disability themselves, and therefore any special needs they may have should be considered as for any other technique.

## Procedure

The procedural requirements for involving experts are few, and to some extent self evident. However several specific steps may need to be taken during the exercise.

### Preparations

The first thing to do for the organisers is to agree upon the participants and make a checklist of things to do before the meeting, including all practical arrangements. Although it is trivial, it should be stressed that the success of any session regarding expert opinion is partly dependent on the participants understanding of what is expected from them, and how much of their time and effort the study will take. This means that it is important to explain clearly (preferably in writing) the objectives of the investigation, and what will be required of the experts.

Depending on the needs of the investigation, it can be useful for the organiser to list the questions that are of interest for them to answer during the investigation, and also to provide the experts with some

context of use of the product where needed e.g. explaining what the product is designed to do and who it is intended will use the product. In addition it can be of value to provide the experts with some suggestions for tasks to try using the product, though many experts will not require such direct guidance. It is important to ensure that the experts have sufficient time to explore using the product, and that in addition their views and opinions are properly recorded. Experts may be personally interviewed or given questionnaires, and may also be asked to discuss their observations in a group setting with other experts.

## Results

The results of an expert opinion session are usually a list of perceived problems or reservations regarding the usability of a product, and a list of recommendations for improvement. Involving a number of experts can assist in identifying whether potential problems are likely to exist, as individual expert opinion is not infallible. However if a number of different experts provide the same feedback it makes it likely that a real problem exists. A good rule of thumb is to consult 4-6 experts and see what degree of commonality is present. However it is important to realise that expert opinion is a poor substitute for end user involvement in assessment, and should be seen as a screening mechanism for the more obvious problems rather than as replacing other types of evaluation.

A specific method for capturing expert opinion is "Heuristic Evaluation". More information on using this technique follows.

# Using Heuristic Evaluation

Heuristic evaluation is an informal but systematic way of gathering expert judgements. It has been widely used in evaluation of the human-computer interface to IT products. The prerequisites for using the method are the same as for gathering expert opinions in general, however, there are several procedural requirements to be met when doing a heuristic evaluation.

The name “Heuristic evaluation” refers to the fact that experts commonly make their judgements on the basis of “heuristics” or rules-of-thumb based on their accumulated knowledge, and that often these are implicit rather than having become verbalised. Heuristic evaluation thus requires experts to make judgements on this basis, but does not demand that they make explicit the logic behind their judgements. The result of a heuristic evaluation is normally a list of problems that users of the product are expected to experience during use.

A common assessment of the method is that it provide valuable information about a user interface, however, it is also recognised that the results of the method usually relate to “superficial” qualities of the interface, like the use of colours, screen lay-out, use of labels and terminology. If it is expected that there are problems regarding “deep” features of the product like program structure or the use of basic metaphors, one would normally also recommend methods that let actual or potential users try out the product.

A heuristic evaluation is usually performed with a panel of people that are experts on human-computer interaction. There is evidence that people that are not experts, may also give valuable judgements, however one needs more judges in order to detect the same number of problems. It is also shown that “double experts”, people with expertise in both the application area and in the area of human factors, tend to find more problems than others (Nielsen 1990). There is no firm evidence on the performance of “single experts” in the domain area, for example experts on a specific kind of assistive technology.

## Procedure

### Material

In advance of the evaluation all the relevant material should be gathered and prepared for the presentation. This includes the product or system to be evaluated and any background material on what the product aims to do, and who its target users will be. It can be valuable to have a person on hand who can demonstrate the product to the experts, and to answer any questions that may arise regarding its use. The experts must base their judgements on a demonstration of the product, and this can vary in sophistication from paper mock-ups, working prototypes or a full system. In each of these cases it is important to try and ensure that the experts understand what the final product will be like, and how it will operate. The poor reliability or performance of a prototype may adversely influence expert opinion, and effort is needed to make prototypes perform as closely to the final product as possible, or make these differences very clear to the expert judges.

### Usability briefing

Depending on the experiences of the experts in this kind of evaluation, it may be useful to give a short briefing on the method, and the procedures to be followed. See Nielsen ( 1994 ) for general rules for good user interfaces.

### Demonstration

The experts should be instructed about the purpose and intended use of the product. User group and task characteristics should always be presented as background information for the demonstration.

It is important that the demonstration is neutral, and that the experts do not discuss their opinions during the demonstration. This is the greatest difference between a heuristic evaluation and other expert methods; the judges must not influence each other until their opinions have been recorded. Therefore the ideal situation is when the judges are given the demonstration one by one, this is however often not very practical.

Experiences are that experts like to discuss and share their opinions on interesting issues. Therefore it is wise have a group discussion after the heuristic evaluation. Knowing that, the experts may be willing to hold back their opinions until they can be express in a group discussion.

## Judgements

During and after the demonstration the experts produce a list of perceived user problems. They are asked to state their opinions as short and precise as possible, and to omit any substantiation or discussion of the issues involved. It is important that the problems are stated so clearly that it can be recognised whether two judges have discovered the same problem or not.

## Analysis

The raw results of the evaluation is the list of detected problems. There is however also imbedded in the method a means to estimate how many new problems that would be detected if more experts were involved. See the description under User Trials for a technique for getting a rough estimate of how many new problems one new expert could be expected to find. There are also strict formal methods Nielsen & Landauer (1993) for doing these calculations which also gives an estimate of the total number of problems as a theoretical quantity.

It is also recommended that each of the detected problems are rated for severity, for example on a 7 point scale. This can be done by the original group of experts, or by a quite different group.

# Sources of Further information on Heuristic Evaluation

The method is described in Nielsen (1994a) and Nielsen & Molich (1990). In Nielsen (1994) different sets of usability heuristics are discussed and analysed. Much emphasis has been laid upon the cost-effectiveness of the method. Nielsen claims that it is a highly cost-effective method, see for example Nielsen (1994b) where he discuss it along with other “discount usability” methods. Jefferies, Miller, Warton & Uyeda (1991) have also compared heuristic evaluation with other related methods.

JEFFERIES, R., MILLER, J. R., WARTON, C. & UYEDA, K. M. 1991, User Interface Evaluation in the Real World: A Comparison of Four Techniques. Proc. ACM CHI'91 Conf. (New Orleans, LA, 28 April 28-3 May), pp119-124

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