What do writers need to know about user testing?

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Abstract

Increasing amounts of information are being made available to patients – but how do we know if we are getting it right and meeting people's needs? In this article, we describe how we have employed user testing to test and improve not just information for patients, but also for professionals and others. This is built on the many years of using this technique, first at the University of Leeds and then through the spin-out company Luto Research (http://www.luto.co.uk).

Keywords: User testing, Information for patients, Health literacy, Package leaflets, Risk management plans, Clinical trial lay summaries

Writing for a lay audience is a particular skill which needs to follow established good practice guidelines.[1] However, even expert writers cannot rely on their expertise alone – they need the input of members of the public themselves. User testing is a unique way of engaging people to test and identify where documents have problems and need improving.

How is user testing unique?

User testing is 'performance based' and shows how a document actually performs when being used by the target audience. It is unique because it combines both quantitative and qualitative data gathering – often finding weaknesses in documents which expert writers could not have predicted themselves. It is very different from content based testing using readability formulae (such as Flesch or SMOG), which generally only test relatively minor aspects of readability i.e. word and sentence length. This means that a piece of information written backwards will have the same readability score as when written forwards.

In a user test (Figure 1), participants are first asked to find, and then explain, key pieces of information. Following on from this, they are asked general questions about the document – what they liked and didn't like and how they thought the information could be improved. The latter (asking for an opinion) is more typical of the 'user involvement' employed in the past – but it is different here. In user testing, the general views and opinions come from participants who have just had to use the document to find and explain information. This gives them a much more informed perspective on which to base their general views on the pros and cons of the document.[2]

User testing is also different because in user testing it is 'real' people who are testing the information. In the past it has been more 'expert' patients whose views have been obtained – people associated with patient groups, for example. Such expert patients can provide valuable input at the early stages of health information development but, because of their expertise, they are not the right people to test the information produced. What we need are real people to test whether the information actually works – can they find and understand the information they need? In a recent test at Luto Research, a university spin-out company which develops, refines, and tests health information materials, the participants included a retired cleaner, an unemployed person, a stand-up comedian, and a bus driver – representative of the real people who have to be able to use and understand the information we produce.

How is user testing performed?

User testing is a defined process originally developed in Australia by Professor David Sless,[3] and the key steps are described in Table 1. An important point to note is that the participants are *potential* users of the information. If the participants were already familiar with the topic the document is describing, they would have prior knowledge which they could draw on, and not just rely on the

DOI: 10.1179/2047480615Z.000000000326

Figure 1: Typical user testing setting.

information in the leaflet to answer questions. User testing mimics the situation when someone first encounters a particular treatment or health issue, and receives information about it.

Also important is that, when applied properly, user testing is an iterative process (Figure 2). The document is drafted and then tested, generally with a 'round' of 10 people. The results are then assessed, bearing in mind that not all feedback from participants can be taken forward; indeed sometimes the feedback can be contradictory. After this careful analysis of the data, good practice in information writing and design is applied to amend the document – and it is then tested in another round of 10 people. Crucially, the testing itself does not improve documents; it is the application of good practice between rounds which is the key skill. The use of small numbers in the testing often raises the question 'How can you test something on just 10 people?' The answer is that user testing is a form of diagnostic testing – finding out where documents do not work, and remedying problems using expert information writing and design practice. Our experience, in over 20,000 individual user testing interviews that Luto has carried out, is that if there is a significant problem with a document, this will become apparent in the first two or three interviews. David Sless likens this to finding a 'creak' in a set of stairs – you do not need a large representative sample of stair users to find a creak.[4] Remember, though, that in user testing it is the people who are testing the information; we are not testing the people. This has to be stressed at

Table 1: Key steps in user testing

Step	Description
1	Identify the key points contained in the document – usually 12–15 points for an average health leaflet
2	Decide who to test the information with – potential users of the information, with a range of reading abilities and ages
3	Write a questionnaire which (a) tests finding and understanding of each point (b) gets participants' general views on the leaflet
4	Pilot the questionnaire on 2–3 participants
5	Administer the questionnaire individually to a 'round' of 10 participants
6	Analyse the quantitative and qualitative data to identify the strengths and weaknesses of the leaflet
7	Revise those parts of the leaflet where there have been shown to be problems, using good practice in information writing and design
8	Test again on a new round of 10 participants

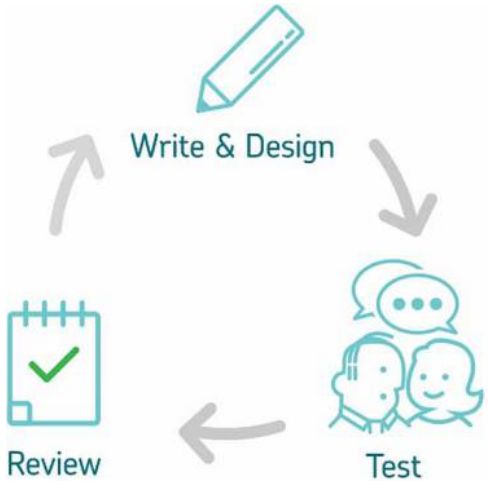

Figure 2: The virtuous circle: Write and design -> test -> review.

the beginning of each interview – we want them to find the weaknesses in the document.

How does this relate to health literacy?

It could be argued that the people least suited to assessing the suitability of lay information are the experts who write it. Medical writers, health professionals, and other people who work in regulatory affairs or medical information often have lives that are quite different from 'real' people. When writing for lay people, at the front of your mind should be that many people do not read too much and their literacy skills are much weaker than yours. Health literacy researchers often focus on identifying people with 'low health literacy' in order to provide particular materials or support to them. Our approach follows the 'universal precautions' approach promoted in the US, which accepts that all people would benefit from clear and well written information – not just the people with low literacy skills.[5] Indeed, health professionals themselves need clear and easy to read information – as shown by our user testing of the Summary of Product Characteristics (SmPC).[6]

What types of information can user testing be applied to?

User testing is the industry standard for testing Patient Information Leaflets (PILs) – indeed it is a regulatory requirement that such 'consultation with target patient groups' takes place. However, it is a powerful technique that can be applied to any type of health information – indeed any information at all. This means any format as well, including screen-based information and audio or video.

User testing has been applied to other medicines information such as educational materials accompanying Risk Management Plans (RMPs) in the EU or Risk Evaluation and Mitigation Strategies (REMS) in the US. Although not a legal requirement, successful user testing of such materials (for patients or for health professionals) has been welcomed by regulators. Other materials which have been improved by user testing include clinical trial patient information sheets[7] and lay summaries, which are becoming more prevalent, particularly in the EU. This includes European Public Assessment Report (EPAR) summaries[8] and RMP summaries. Our research shows that such testing can produce considerable improvements. However, it is not routinely applied. Even more significant is the new requirement for companies to produce lay summaries for all clinical trials. We have worked with a number of companies to maximise the readability of such summaries through applying good practice and user testing.

Figure 3: Keep out of the reach of children?

User testing can also be applied to pictorial information – indeed it could be argued that it is more important to apply it to pictorial information. If wording is not understood, the outcome is generally neutral – people just do not understand. With pictures, graphs, or other illustrations, people can get completely the wrong idea, which is more dangerous. This means that pictograms should always be tested. Take for example the pictogram in Figure 3. It was designed to be placed on medicine packs to put across a particular message: Keep out of the reach of children. However, our testing showed that some people gave three other meanings to it: 'Do not give to children', 'Do not use if you are pregnant', and 'This medicine is a contraceptive'.

User testing and usability testing

User testing is different from usability testing – but the two techniques can be complementary, and they can be combined into a single test. Usability testing is a term used typically to examine the usability of a set of instructions, such as the Instructions for Use (IFU) for a medical device. It is also used to determine how easy a website or app is to use. For medical devices with both a typical package leaflet and an IFU, we have developed a hybrid test which brings together the benefits of both techniques.

Key messages for medical writers

Writing for real people requires a different sort of writing. Many members of the public do not read too much, so their information needs to be written in a more conversational manner and needs to follow best practice for writing and design.

However, even following best practice cannot predict all of the problems that might occur. So, if you want to know if information works, ask the experts: the users themselves. However, finding out where the problems are is only half the battle. You then need to work with experts in information writing and design to work out how to iron out those problems.

Acknowledgements

We thank all those people who take part in our testing of health information materials – we depend on their expertise for user testing to work.

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