

Developing complex internet interventions to change behaviour: using think aloud studies for theoretical modelling

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Combining usability testing and theoretical modelling

- usability testing = qualitative studies for website development;

identify navigation problems, assess satisfaction with content, format etc.

- theoretical modelling = qualitative research for intervention development;

understand motivations, reasons for engaging or not engaging with intervention etc.

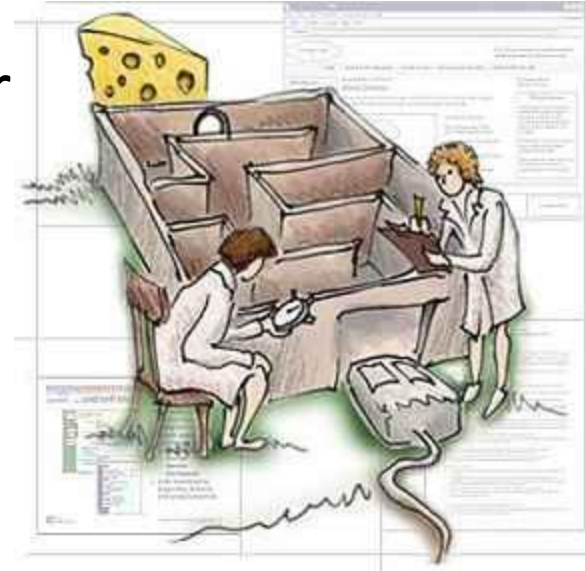


Illustration: development of the Internet Dr

‘Internet Dr’ = theory-based intervention to help people self-care for cold/flu symptoms

Draws on:

- Bandura’s Social Cognitive Theory – builds self-efficacy and positive outcome expectancies for self-care
- Leventhal’s Common Sense Model – provides reassuring explanations for symptom profile, duration, causes
- Fogg’s principles of ‘persuasive technology’ – incorporates humanising features to increase trust/engagement



Qualitative study 1

- Piloted planned web-pages in paper format using think aloud method
- 21 people purposively sampled, advertised for people with current/recent flu symptoms
- 15 females and 6 males aged between 18-62 years (12 students)
- thematic analysis, drawing on techniques from grounded theory

Findings from qualitative study 1

Usability themes concerning:

- specific page content or format;
- general website format (e.g. colour, navigation, terminology);
- reactions to the advice given on whether to consult the doctor;
- reflection on the circumstances in which they would consult the doctor rather than (or in addition to) the website;
- specific suggestions for altering, updating or expanding what the website provided

Findings from qualitative study 1

Theoretical themes concerning reactions to information:

Positive themes

- The information is helpful, reassuring and trustworthy
- Could identify with the information provided - matches personal experience
- The information is interesting or useful for future reference

“I think that’s fine because it tells me the reason, it tells me when I, it tells me that I don’t need to see the doctor, it tells me what I would look for.” [female, graduate]

“That’s helpful, even though I already knew that already, but it’s helpful because it tells you exactly what causes the problem ... next time that happens you know you go to the chemist and take lozenges, or to just take paracetamol – yeah, it’s really good.” [female, student]

Findings from qualitative study 1

Negative themes

- Information provided is excessive, overwhelming
- Excessive information impedes accessing advice quickly

“It’s too much for a first page, I’m already bored [laughs] it’s too complicated, I’m a simple person.” [male, non-graduate]

“I think maybe the text is a bit too long, I mean I’d rather just get to the point straight away, and say ‘You don’t need to see the doctor’ on a bullet point, and then the available treatments on the next page, and then if further just click here.” [male, non-graduate]



Theoretical modelling

Key question: how much information should be presented, to whom, and in what way?

- Theory and research on preferences for information-seeking suggest some people prefer less information (often men, older people, lower education)
- Developed website in which detailed information optional, to maximise accessibility to all
- Carried out second study to elicit views of website of men and women with low/high education levels





Welcome



Your Personal Internet Doctor For:

- flu-related symptoms and infections
- cough, chest infections
- sore throat, tonsillitis
- runny / stuff nose, sinusitis
- fever, feeling achy and unwell

The advice has been prepared by a team led by Professor Paul Little, a GP who is an international expert on caring for these infections.

[Click here to view the welcome message by Professor Paul Little](#)

[Click here to see Professor Paul Little's qualifications](#)

[Click here for references to some of the published evidence on which the advice is based](#)

The internet doctor will ask you all about your symptoms and general health, and then give you personal advice on:

- whether you need to see your doctor
- the likely cause of your symptoms
- what you can do to feel better

Our aim is to give you all the information you could get from seeing your doctor, but with the advantage that:

- You don't have to travel to the surgery and sit there waiting for your appointment with other unwell people!

[NEXT](#)



Click on the symptom you would like advice for:

- Welcome
- Cough
- Sore Throat**
- Runny/Stuffy Nose
- Fever

[How to consult the Internet Doctor](#)

So that we can give you the right advice, we need you to answer a few questions about your symptoms.

After you click 'Next' at the end of the page, all your answers and advice will be saved during this session. This means you can go back to check or change your answers if you want to.



How long have you had your sore throat for?

- Less than 4 weeks
- More than 4 weeks

Over the last week has your sore throat got better, worse or stayed much the same?

- My sore throat is getting a little better, but too slowly
- My sore throat is not getting better at all
- My sore throat is steadily getting worse

Do you have any difficulty swallowing?

- None, slight or some
- Yes, I find it very difficult to swallow - I am not able to drink enough to stop being thirsty and I have a dry mouth
- I can't swallow at all (not even my own saliva)


[Common Questions](#)

[How to consult the Internet Doctor](#)


Doctor's Questions



Symptom Advice


Treatment Options


Printable Advice

[Common Questions about Colds and Flu](#)

Your Symptom Advice

 Symptoms of a sore throat (pharyngitis is the medical name), are most commonly caused by viruses and can be quite painful and uncomfortable. You may get a burning feeling in your throat and it can be painful to swallow, especially hot foods and drinks. Your voice may sound hoarse and broken and sometimes may disappear for a day or so. You may feel as if your throat is closing up if your tonsils are swollen.

The glands in your neck can feel sore or can swell up when you have a sore throat. Your glands are an important part of your immune system – they produce the white blood cells and antibodies that fight infection – so swollen glands are just a sign of the body fighting infection. Your glands will gradually go back to their normal size when the infection is over.

The sore throat symptoms you have described are not a sign of a serious illness and you do not need to contact your doctor about them at present. You do not need a prescription for the treatment of your sore throat – just click on 'Treatment Options' for advice.

If your symptoms get worse or do not get better, or if you have any other symptoms, then check this website again for advice on whether to contact your doctor.

Click on any of the questions below to find the answers
The answers to the questions will appear right away and will also be included in your printable advice.

Ask the Internet Doctor

- [What is causing my sore throat?](#)
- [When should my sore throat clear up?](#)
- [Could going to see a doctor help my sore throat get better?](#)
- [How can I tell when I need to contact my doctor?](#)



Click on the symptom you would like advice for:

Welcome

Cough

Sore Throat

Runny/Stuffy Nose

Fever

[How to consult the Internet Doctor](#)

Are you still unsure whether your symptoms may be a sign of a serious illness that needs to be seen by a doctor?

We have listed the serious conditions that can cause some similar symptoms (although these are much less common causes of a sore throat).

If you would like further information to help you decide whether you might have any of these conditions, and whether you need to contact your doctor, click on any of the conditions below to read about them.

Click on any of the conditions below to read about them. The information will appear right away and will also be included in your printable advice.



Doctor's Questions



Symptom Advice



Treatment Options



Printable Advice

[Common Questions](#)

Ask the Internet Doctor

[Tonsillitis](#)

[Glandular fever](#)

[Bronchitis](#)

[Meningitis](#)

[Emphysema and chronic bronchitis](#)

Click 'Next' to find out about your Treatment Options

[NEXT](#)



Click on the symptom you would like advice for:

Welcome

Cough

Sore Throat

Runny/Stuffy Nose

Fever

[How to consult the Internet Doctor](#)

Your treatment options

We have put together advice for coping with your symptoms based on doctors' experience, medical evidence and what has been found useful by people with similar symptoms.

Click on any of the advice below to read about it. The information will appear right away, and will also be included in your printable advice.



Doctor's Questions



Symptom Advice



Treatment Options



Printable Advice

[Common Questions about Colds and](#)

Ask the Internet Doctor

[Click here for advice on how you can ease your symptoms without any medication](#)

You do not need to take any medication – the medication we suggest below is just to ease symptoms and not to cure you. Click here for ways to ease your symptoms without having to take medications.

[Click here for advice on what to ask for from the chemist, if you are happy to take medication](#)

You do not need to worry that taking the medication we suggest could harm you. All the medicines we suggest are safe, and our treatment advice gives details of any side effects.

[Click here for advice on how to boost your immune system, and help your body to recover naturally](#)

You can click on any other symptom at the top of the page that you want advice for.

Don't forget to click on:



Printable Advice to see and print all the advice you have selected for all your symptoms.



Common Questions about Colds and Flu if there is anything else you would like to know about – we have put together answers to some more questions that people often ask.

Click 'Next' to see your Printable Advice

Qualitative study 2

- Piloted website using think aloud method
- 26 adults (14 female and 12 male) aged between 18-63 years, internet use ranged from 0-63 hours/week
- 12 graduates, 14 non-graduates including people with minimal qualifications
- thematic analysis, with systematic comparison of themes by gender, education

Findings from qualitative study 2

- *There was a lot of information available, which I found was very good information. [female, pharmacist, PhD]*
- *I am quite impressed about how informative it is. [male, unemployed, vocational qualification – NVQ level 2]*
- *My general feeling is, there's a lot of really useful information on here. [female, student]*
- *The information that was there, that was good information, so the content I suppose you could say I like, the information was good. [male, shop worker, GCSE]*
- *I did like the site and I certainly will go to the site again. [female, home-maker, Portugese high school certificate]*

Findings from qualitative study 2

- Very enthusiastic about 'treatment options' information
- Mixed views of diagnostic questions

I am starting to answer the questions quickly and not really think about them so much because there are quite a few questions.
[male, PhD student]

There's quite a lot of questions in there but I understand you need to ask that for medical reasons, I don't mind asking answering [sighs] answering questions because obviously you don't want that advice to be wrong. [male, scaffolder, vocational qualification – City and Guilds]



Conclusions: website-specific

- Next iteration of Internet Dr should allow users further freedom to choose – can go straight to ‘treatment options’ without our symptom assessment
- Modifications can be easily carried using the ‘LifeGuide’ software for creating and evaluating web-based interventions
www.lifeguideonline.org
- Will carry out full randomised controlled trial of modified Internet Dr this autumn

Conclusions: wider implications

- By combining usability testing with theoretical modelling may be able to contribute to more general principles for understanding and delivering self-care
- Educational level need not be a barrier to valuing web-based access to in-depth self-care information, if users feel they have choice and control and can quickly access the specific information they value.



Thank you for listening.

If you would like to use the free LifeGuide software to create internet interventions

find out more at

www.lifeguideonline.org

or visit our stall at the next break!