

# Introduction to LifeGuide: Open-source Software for Creating Online Interventions for Health Care, Health Promotion and Training

S. Williams<sup>1</sup>, L. Yardley<sup>1</sup>, M. Weal<sup>2</sup> and G. Wills<sup>2</sup>

<sup>1</sup>Centre for Applications of Health Psychology, School of Psychology,  
University of Southampton, UK [L.Yardley@soton.ac.uk](mailto:L.Yardley@soton.ac.uk)

<sup>2</sup>School of Electronics and Computer Science, University of Southampton,  
UK

**Abstract:** This presentation will introduce ‘LifeGuide’; free open-source software that allows people with no programming capabilities to develop, modify and evaluate online interventions. Online interventions are used in healthcare to assist service users to manage or change health behaviours or to provide e-learning modules to train and assess healthcare staff. The presentation will describe the software, provide examples of current LifeGuide interventions and give a brief demonstration of the tool.

## Introduction

The benefits of providing healthcare interventions online are well-known. The low-cost, 24 hour availability and global accessibility make them an important resource for both the intervention user and for policy makers [1]. Furthermore, internet interventions can be made available to large numbers of people therefore researchers can collect longitudinal data on the use and effects of intervention components in large samples.

Traditionally, the development of online interventions has been resource intensive. Each intervention is normally programmed individually by a team of programmers and the initial development of an online intervention can be more expensive than for other formats (e.g. face-to-face or printed). Moreover, once an intervention has been programmed it can be difficult to modify it. In contrast, LifeGuide enables people with no programming capabilities to develop online interventions in a cost-efficient and flexible way. This opens up online intervention development to people who may not normally have the resources to do so (e.g. postgraduates and early career researchers). Moreover, the software is embedded in a virtual research environment (the LifeGuide Community website) which allows researchers to share intervention components and therefore avoid costly duplication of interventions.

## The LifeGuide Software

The LifeGuide software consists of an authoring tool (Fig. 1), logic and an intervention manager (Fig. 2).

### *The Authoring Tool*

The authoring tool is used to create the pages of the intervention and has been designed to be easy to use to allow novice researchers to create their own internet interventions. Within the authoring tool users can add: their intervention content; interactive questions to obtain information from intervention users in order to provide tailored advice; buttons to navigate throughout the site; and images, videos and audio files. The look and feel of the website can also be changed using a flexible drag and drop interface to alter background, layout and colour whilst a templates function is also available to allow users to create a standardised design.

### *The Logic*

The logic is a written set of commands that works behind the scenes of an intervention to make it run as expected; it is what makes the intervention work. It is the logic that allows intervention users to move from one page to another ensuring that they are directed to pages that are tailored to their situation. Logic commands can also be used to enable the intervention to: give personal feedback to intervention users; automatically randomise users into groups; automatically score questionnaire items, send automatic e-mails or text messages and lots more. More information about how logic is used in LifeGuide interventions can be found in our LifeGuide Researcher Manual [2].

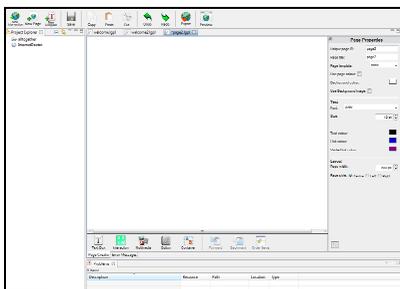


Fig 1: The LifeGuide Authoring tool



Fig 2: The Intervention Manager

## The Intervention Manager

Completed and tested interventions can be uploaded to our LifeGuide server on the LifeGuide Community website (or on a researcher's own server) to run their intervention trial on the intervention manager. Here, researchers can collect research data and track participant usage of the intervention. All information entered by a user throughout the course of an intervention is securely stored and then can be exported from the intervention manager to Excel for analysis.

### Creating tailored interventions

Interventions developed using the LifeGuide software can provide intervention users with key features for effective behavioural interventions. Interventions can be individually tailored for the website user and provide essential longitudinal support in the following ways: including diagnostic or assessment questions that can then be scored automatically; providing tailored (personalised) advice based on the intervention user's responses to interactive questions; helping users to plan and self-monitor their activities; and providing communication with peers and therapists through e-mails, forums and message boards.

LifeGuide has already been used successfully to create interventions for: promoting hygiene behaviour to reduce transmission of pandemic flu; delivering tailored advice for self-management of cold and flu symptoms; delivering 8 sessions of cognitive-behavioural therapy for irritable bowel syndrome; and providing e-learning and assessment tools for health professionals. Projects that are currently in development include interventions that aim to: aid smoking cessation; reduce antibiotic prescribing in GPs across Europe; reduce weight; and manage stomach and bowel problems.

The figure displays two examples of internet interventions. The left screenshot shows a page titled "The Internet Doctor" with a navigation bar (Home, Doctor's Questions, Treatment Options, Common Questions) and a profile for Professor Paul Little, a GP. It lists flu-related symptoms and infections, including cough, chest infections, sore throat, tonsillitis, runny/stuffy nose, sinusitis, and fever. It also offers a "Welcome Video" and three interactive sections: "Find out if your symptoms are serious and get personalised symptom advice", "Find out how to make yourself feel better", and "Get answers to common questions about colds and flu". The right screenshot shows a page titled "Understanding How Your Stomach and Bowel Work" with a section "What Can Help to Keep the Bowel Happy?". It includes a "Part 1" button and a "Home" link. The main content lists three key points: 1) Diet and eating patterns (meal times, meal sizes) can affect digestion. 2) Physical activity (keeping active) can help ease stomach or bowel problems. 3) Relaxation (good night's sleep, staying relaxed) can help deal with stomach or bowel problems caused by stress. It also mentions that thoughts and feelings (the way we think and feel about ourselves, tasks, and events) can affect our stress levels and the way we deal with stomach or bowel problems.

Fig 3: Example Internet Interventions

Future planned capabilities of LifeGuide include the ability to link with medical records; connect to monitoring devices (e.g. heart rate monitors); and to deliver interventions through other communication modes (such as mobile phones).

### The LifeGuide Community

The LifeGuide software is freely available to download from our LifeGuide Community website ([www.lifeguideonline.org](http://www.lifeguideonline.org)) where users can find a detailed user manual and support from others using the tool, share intervention components and find examples of internet-based interventions developed using the software.

Our LifeGuide community also allows networks of researchers to share whole or parts of interventions enabling collaboration, collection of larger datasets and the opportunity to flexibly modify existing interventions (e.g. translating them for use in other languages).

### Acknowledgments

The LifeGuide project is funded by the Economic and Social Research Council (ESRC).

### References

- [1] F. Griffiths A. Lindenmeyer, J. Powell, P. Lowe and M. Thorogood “Why are health care interventions delivered over the internet? A systematic review of the published literature.” *J Med Internet Res*, 8(2), e10, 2006.
- [2] S. Williams, J. Joseph and L. Yardley “LifeGuide Researcher Help Manual” 2010. Available from <http://lifeguideonline.org>