

University of Southampton

# IBBRE

A procedural case study

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# Procedural Case Study for a Virtual Research Environment (VRE)

## 1. Introduction

Behavioural interventions (BIs) – packages of advice and support for behaviour change – are arguably the most important methodology and technology employed by behavioural scientists for understanding and changing behaviour. Each BI acts as an experiment that tests whether the components of the intervention do influence attitudes and behaviour as predicted by theory. BIs are also powerful applied tools for changing behaviour in desired ways; for example, to change risky or antisocial behaviour, improve productivity and reduce accidents in the workplace, enhance learning activities, or promote environmentally important behaviour change. Such behaviour changes include reducing energy use, supporting health-related behaviour change for unhealthy behaviours, aiding self-management of healthy behaviours (e.g. hand-washing), and enhancing learning activities for busy health professionals.

BIs have traditionally been delivered principally face-to-face, and this continues to be the dominant method of delivery. A major problem with this mode of delivery is that it is extremely resource intensive, severely limiting the scope for cost-effective interventions. Clearly, it is not feasible to provide every individual with 24-hour access to personal advice and support for managing all aspects of their lives. Internet-Based BIs (IBBIs) are therefore beginning to play a crucial role in the delivery of BIs. IBBIs can be made available over the web to most of the population for little more than the cost of development. Interactive IBBIs can provide information and advice specifically ‘tailored’ to address the particular situation, concerns, beliefs, and preferences of the individual, by adapting their path through the information space. Interactive IBBIs also provide a rich, stimulating, engaging, and actively supportive environment, with audiovisual illustrations, reminders, personalised feedback regarding progress and concerns, and opportunities for peer-to-peer support and comparison.

At Southampton University we had already developed a set of tools (named the ‘LifeGuide’) that allow behavioural scientists to author IBBIs, underpinned by the IMS QTI standard. While these tools have immediate benefits for individual researchers and research groups, they also have the potential to support major productive changes in research practices if they can be embedded within a VRE that allows IBBIs to be shared between researchers within and across institutions. Major obstacles to intervention research have been identified; they include issues around the extreme time-intensity of developing intervention components and the lack of ready availability of components so that other researchers can critically analyse their key characteristics. If IBBIs could be viewed and shared within a VRE this would allow wider research communities to greatly speed up the research cycle of producing intervention components and testing them using large, pooled datasets.

The challenge to the university was how best to support resource sharing, critical analysis, publishing, and peer review of IBBIs within inter-disciplinary research groups and networks. The behavioural scientists wanted to be able to collaborate on the building of IBBIs, discuss IBBIs (peer review), securely make available the results of IBBIs to other behavioural scientists, allow others to use anonymised data in meta-studies, and inform others of what did or did not work.

One of the aims of the project was to analyse and describe how a VRE can be flexibly used to support collaborations within and outside the university.

A desk study was carried out to ascertain how the VRE would be used from a researcher's perspective. This in turn informed the co-design process for the IBBRE VRE.

The desk study has highlighted four types of sharing that need to be supported in a VRE:

- 1) Peer support - Between researchers actively using LifeGuide
- 2) Technical support - Between researchers actively using LifeGuide and programmers
- 3) Collaboration and Supervision – Between researchers actively using LifeGuide and supervisors/line managers/others involved in the development of interventions
- 4) Dissemination – both disseminating LifeGuide to researchers and disseminating Internet Based Behavioural Interventions (IBBIs) within the wider research community (e.g. sharing intervention components, knowledge about what aspects of behavioural interventions are most effective)

This document highlights the current practice of each of these four types of sharing and discusses how a VRE might aid this sharing.

Further to the desk study, interviews, questionnaires and user observations were made with our user community in order to gather requirements. These are also summarised as Personas and Scenarios, see appendix A.

## 2. Peer support

At present, all of the researchers using LifeGuide at Southampton work in the same office. In the LifeGuide office it is not uncommon for researchers to ask for the opinions and perspectives of the other LifeGuide researchers in the room and to discuss their frustrations with one another. Researchers in the office have even expressed to one another how glad they are to have someone else to discuss LifeGuide with. Plans are being made for people new to using LifeGuide at the University of Southampton to work within the same office explicitly so they can benefit from the peer support of those with experience of using the software.

Peer support also helps the learning process of using LifeGuide. As one researcher put it LifeGuide requires a certain amount of “learning as we go along” and in the LifeGuide research room there is a real sense of ‘muddling through’ the development of interventions together.

For researchers new to developing online interventions the prospect of using LifeGuide can be daunting and new researchers who have visited the psychology department to discuss the use of LifeGuide issues have expressed “feeling terrified” about the thought of developing an IBBi.

There is increasing interest in using LifeGuide from researchers in other institutions and internationally. Some researchers may be the only one in their department using the software and therefore it is important that they can have access to a peer support network.

The VRE could provide researchers with this much-needed peer support through an open discussion forum (box 1). Reading about others' experiences and being able to ask for advice from those in a similar situation may make the prospect of using LifeGuide much less daunting for those who have never created an IBBi before.

This public discussion board could also help in addressing

Box 1: “Obviously we find it very useful being in an office together so it would be good to have some kind of online chat feature [...] the only problem is because it's something that can take some time you know you load up your question and log back in to see if anyone's answered it and that's fine I think if you're on your own you need that but I quite like asking people in person but not everyone is going to be able to have that option so I think this will be the next best thing.”  
(Participant 1)

the current disparity between researchers' expectations of LifeGuide and its capabilities and could help in finding out users' needs and requirements for the further development of LifeGuide functions.

### 3. Technical Support

Technical support is an essential part of developing an intervention. Although help materials are being produced, these will not be able to cover every possible technical problem and cannot detail every potential piece of logic that a researcher will need. Sharing programming knowledge is therefore, inevitably, going to be an ongoing process. This knowledge may come from programmers at Southampton, programmers from other institutions or may come from researchers themselves once they have found this knowledge out.

Technical support is currently provided by a small programming team who also have to find time to develop the authoring tool. Paradoxically, if the programmers have to spend time on supporting researchers they cannot spend time developing the tool and fixing the bugs that will make it easier to use and subsequently require less technical support. Attempts are made to restrict technical support to only one day a week but this is not enough for researchers, who often have to work towards deadlines to finish the intervention and start collecting data. Researchers often rely on the help of programmers when bugs or problems in logic occur that need to be rectified for the project to move on. As the number of people using LifeGuide increases and as researchers become more geographically dispersed, this small team will not be able to continue to provide this level of support to each user.

At present researchers who encounter a problem or who need to learn a new piece of logic will usually e-mail the programming team or ask them for help at the weekly LifeGuide meetings. If the programmers need to view the intervention then researchers can share their intervention files with the programming team in two ways, both of which can have problems.

1) via e-mail - It can be difficult to e-mail intervention files to the programming team as the e-mail scanner thinks it is detecting potential viruses and often does not allow it to be sent. Researchers often need to delete certain files to allow this to be sent.

2) using a USB stick - Often when a researcher wants to share their intervention files with a programmer, they will physically take the files over to the ECS department on a USB stick. This then involves the researcher sitting with the programmer whilst the problem or new piece of logic is worked out. This can be a long, time-consuming process, often with the researcher not really having much to add towards helping the problem being solved. Sitting with the programmers is the recommended solution for a number of situations including:

- When the researcher is learning a new piece of logic
- When files are too large to be sent over e-mail
- When communication difficulties and differences in programming experience between programmers and researchers mean that the programmers cannot see a problem that the researchers are having
- During bug fixing – for example in the testing phase of one intervention there were bugs with the software which meant pages were not displaying correctly – researchers therefore tested the site next to the programmers so they could show them every time the bugs occurred.
- There have also been occasions of the programmers coming over to the researcher's office because problems were only occurring on the researchers' computer

Although the VRE may not be able to replace all of the functions of face-to-face support it could provide some level of support for those who do not have access to a programming team. The VRE will enable researchers to upload their interventions (or parts of their

intervention) and should therefore alleviate the problems encountered with sharing files via e-mail or using a USB stick.

Researchers have also suggested how a forum would be useful so that they can use this to communicate with others who may be able to help when they have a technical issue with LifeGuide. It has also been suggested that a discussion board could be set up with the help materials to allow researchers to discuss the materials and add anything new that may be missing. In this sense, the help materials will become “user-generated” based on issues of importance for researchers. A VRE should help to improve access to technical support for researchers who can post queries about technical issues for anyone else to reply to or search the site for previous queries and this should also reduce the need to rely on the small team of programmers.

Logic is a big part of developing an IBBI but this is the most difficult part for the researchers to do. As one researcher remarked “it’s not intuitive for me”. Researchers require examples of logic that they can then use in their own intervention.

## 4. Collaboration and Supervision

Box 2:

“I guess some form of forum where you could discuss this [problems] with someone else and if there was somebody who was more knowledgeable who really knew how to use LifeGuide if they could help out that would be useful. Because you could have several members there and someone posted up a question in the forum then if there is someone who is able to help then that would be quite good because then you could get a reply much quicker than if you were relying only on one person to get back to you.”  
(Participant 4)

“Logic and other people’s logic would be really useful so for instance if you saw someone else’s

Collaboration here is meant in its broadest sense of working together and includes collaboration between junior researchers to work together on an intervention, collaboration between a larger team which requires input on content and study design or supervision between a PhD supervisor or a line manager and their students or research assistants. Potential collaborators in a LifeGuide project include:

Researchers (e.g. research assistants, research fellows)

- PhD students
- Supervisors or line managers
- Clinical experts
- Expert patients
- Graphic designers
- Programmers

All would have different levels of computer/internet experience and different levels of involvement in the development of the intervention. For example, whilst the researchers would want to be able to set up groups, use a general discussion board and look at the logic of other people’s interventions an expert patient would only want to see the research group that they are involved in, would probably have no interest in downloading the authoring tool and should probably not be able to see other interventions that are being demoed.

Collaboration between junior researchers working together to create an intervention can be difficult. Researchers have often commented on the difficulties of sharing workloads on an intervention. Previous projects have had difficulties in merging intervention versions when two people have been working on the intervention together, including the look and feel of the pages being disparate or having difficulties with knowing what changes on the page may have been made (which can lead to overwriting work that has been done). These issues are important to consider given that one of the aims of the VRE is to allow researchers to share intervention components such as logic files or to change intervention components (e.g. into another language) and add them to another intervention. Similarly, during the testing stage of intervention development it is important to get other researchers to look through the intervention to highlight any problems as the main intervention author may, by this stage, be so entrenched in their intervention that any problems with the content, formatting or style may go undetected. Currently, when a mistake is encountered on a page by one researcher they will write down comments for the main intervention author to make changes at a later time. This can be difficult to write down in a way that makes sense to the intervention author without also having the page to view. Consequently, sometimes during this testing the whole page will be printed out with handwritten notes beside the problems.

Sharing interventions within a research team is currently done by a number of methods all of which currently have problems:

First, interventions that are error free and contain the required logic can be exported and then uploaded onto the researcher server and a URL can be distributed to others to view the intervention and give feedback. However, sometimes the logic may not be ready when the researcher requires feedback from others in the research team. Once a study is ready to launch it is then uploaded onto the live server to begin collecting data. Researchers have often been confused as to what server they should upload their intervention to.

Importantly, researchers have experienced a number of server problems which has led to them not trusting the servers when they have uploaded their intervention. Researchers have experienced travelling to interviews only to find that their intervention is not working on the server or having to take their laptops to meetings to use the preview function to share their interventions to others. More worryingly, one researcher's study had gone live when the server encountered problems which meant she resorted to using survey monkey to collect some of her responses (see box 3). Given current server issues, it is essential that the server holding the VRE is carefully considered, especially given the proposed suggestion that the VRE will be the main website holding every LifeGuide intervention.

If the server is down or if the logic is not ready, then researchers will take a laptop to meetings and have the preview function open to show others within the team. This means that others on the team cannot spend time reading through the pages to give feedback. Other team members usually provide their feedback to the researcher through hand-written notes or verbally during face-to-face meetings. These notes can sometimes be difficult for the researcher to interpret and "annoying" for others to write. Researchers have commented that it would be useful to be able to comment on an intervention page next to the page it occurs as proposed in the current design of the VRE. Some suggestions have included having the comments right next to the page, clearly indicating what page the person is viewing when they write their comments and being able to copy and paste items from the intervention to include in the comments.

Box 3: "There was a problem in terms of it going live when we needed it to and we were really panicky that it was actually going to crash on us because it kept doing that and we were contacted after to say there wasn't enough space on the server and we had great concerns to the extent that we had a back-up with survey monkey and some participants have had to use that rather than LifeGuide." (Participant 5)

With these needs in mind, it is essential that the VRE has the facility to allow intervention authors to upload their intervention pages and allow others within the research team to comment on them. It would be useful if there was a way that comments could easily be linked to the specific page that researchers were discussing. It is also important that this facility does not require error-free logic so that comments can be made in the early stages of intervention development.

Box 4: “Now what I’ve always done is taken my laptop and shown her with the preview mode but that obviously doesn’t work because she obviously wants to sit and proof read it and that means I have to load it up onto live or beta for her to look at it and what happens a lot of the time during the building process is that the pages are there but the logic isn’t because the logic is more complex and I couldn’t write it and I wanted her to look at the content of the pages but because the logic wasn’t working it wouldn’t run so I’d have to then screenshot from preview mode and e-mail it to her. [...] it’s actually quite hard unless you manually take the laptop to show them – it would be nice to be able to share actually to have some kind of joint access to it.” (Participant 2)

## 5. Disseminating LifeGuide and its interventions

The dissemination of LifeGuide encompasses many types of sharing including sharing interventions to allow others to see the potential use of LifeGuide in developing IBIs and what LifeGuide can do. Currently this is being done through conference workshops and demonstrations to individuals who express an interest. However, a substantial proportion of those interested in LifeGuide contact the team through the website and they are unable to attend a demonstration. It will be useful to direct individuals who wish to view current interventions and to give those who find details of LifeGuide online examples of what they can do.

Linked to this, researchers have discussed wanting to be able to see others’ interventions to know what they could potentially do in their own LifeGuide projects – a sense of gaining inspiration and ideas through seeing others’ working interventions and looking at their logic files. Presently short demonstrations about the functions that can be used in LifeGuide are available on the main LifeGuide website but researchers admit to not using these as they are currently unsure of how these might be useful for them. Demo versions of current interventions are being uploaded onto the main LifeGuide website to allow interested researchers to view the sites to get an idea of what they might want to do with the software. This requires small changes being made to the programming to take out any study features that are not needed (e.g. randomisation, automated e-mails etc) and it is necessary to set up usernames on these demos to restrict who can use these demos if they are not yet ready for general public use.

Dissemination can also mean sharing research studies, results and research papers that have used LifeGuide and this may also be a role for the VRE. One of the objectives of LifeGuide is to advance scientific knowledge about what works in behavioural interventions thus in keeping with these objectives, one of the core aims of the VRE is to add to knowledge about behavioural interventions. Both formally and informally this was also a requirement from this desk study. Informally, researchers described wanting to find out from other researchers and through seeing others’ interventions what types of intervention components are most effective.

More formally, the VRE will enable health psychologists to allow other researchers to see what components their intervention uses and to provide data on effective behavioural strategies. Sharing intervention components and the results from intervention studies will allow the research community to collaborate in testing behavioural intervention components.

Thus, the VRE could act as a platform for collating IBBIs that may be used in large meta-analyses of intervention components.

## 6. Summary

From this desk study some important purposes of the VRE can be highlighted. First the VRE should be a platform for improving researchers' use of LifeGuide, through access to both peer and technical support. Also through actively observing and participating in the VRE, programmers can obtain a sense of what is required for improving the LifeGuide software to enhance researcher's experiences and, more importantly, LifeGuide's capabilities. In addition to informal peer support, the VRE could potentially play a role in providing more formal support for the process of learning both how to create IBBIs and to use the LifeGuide software to do so, for example by hosting help materials that can be continuously updated and supplemented by the user community.

The VRE also must provide efficient means for allowing a research team to comment on interventions that are in development and should also allow for more general discussion around the development and trialling of IBBIs. IBBi development is a new and expanding field in psychology and this VRE should help to support researchers working within this field.

Furthermore, the VRE must be consistent with the aims of LifeGuide that promote the sharing of intervention components and intervention knowledge between researchers in the field with the aim of building upon scientific knowledge in a collaborative environment.

It is envisioned that the VRE will be populated by different types of users including researchers developing their own IBBIs, those involved in research exploring the efficacy of IBBIs, supervisors, clinical or patient experts, programmers, graphic designers and possibly even students looking for research articles on internet based interventions. The VRE therefore needs to be simple and well-organised to allow users to find the information most relevant to them. As with any virtual community focused on collaborative sharing, the effectiveness of the VRE is dependent on it being used by researchers therefore it needs to be designed with this mind.

In summary, the VRE should serve the following purposes:

- provide peer and technical support,
- support the process of learning to create IBBIs using LifeGuide
- support collaboration within and between research groups,
- enhance supervision of research,
- allow researchers to upload and comment on interventions,
- disseminate the LifeGuide software and its capabilities,
- and advance scientific knowledge on behavioural interventions

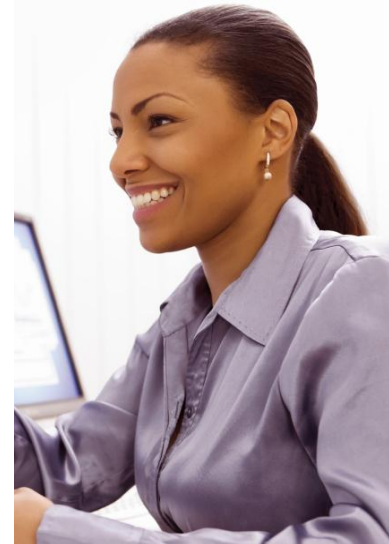


# Appendix A Personas and Scenarios for IBBRE

## 1) Georgina

### **Persona**

Georgina is 28 years old and is a research assistant at the University of Manchester. She has just begun a new project developing an online intervention for helping people with sleep problems. She has never developed an online intervention before and although she has a keen interest and enthusiasm for online interventions she admits to feeling terrified at the prospect of creating a working intervention. She would like to use the VRE to gather ideas for implementing an intervention and to ask questions should she get stuck with using LifeGuide. In preparation for this research project, she is keen to read anything that can bring her up to speed with using the tool. She is hoping to be able to find research papers and articles about developing online interventions on the VRE and possibly even be able to read about other people's experiences of using LifeGuide.



### **Scenario**

Once she has registered for the VRE, Georgina is able to find a comprehensive help-manual for using LifeGuide. The introductory chapter puts her at ease a little but she is still curious to find out more about what it is actually like to use the tool. The help-files are linked to some discussion boards where users can post their queries to one another and discuss their experiences. Georgina finds this very reassuring as although she can see there are some frustrations with using the tool, she can also see the levels of support that users are giving one another. Before she logs out of the VRE she downloads some publications to read on the train home to bring her up to speed with using LifeGuide before she begins to tackle her intervention.

### **Requirements/issues:**

- At the moment the VRE includes papers that the University of Southampton has generated. Are we going to allow users to upload their own papers to the same space? Should this be regulated somehow?
- Discussion board will need to allow users to attach files so they can share documents - At the moment we do not have anything in the VRE that allows users to upload their own (non-LifeGuide created) files, e.g. Word/PowerPoint/Pdf etc.

## 2) Aaron

### Persona



Aaron is 33 and in his second year of training for his doctorate in clinical psychology. He lives in Ireland. He would describe his computer experience as “ok” and also has experience of using programmes such as Dreamweaver to create web pages. His research involves using LifeGuide to develop an online training tool for trainee clinical psychologists to learn about the signs, symptoms and treatment of eating disorders. Although Aaron feels he has adequate experience in web development and feels confident about his technical skills he soon realises that using LifeGuide is not as intuitive as other programmes he has used. He therefore downloads the help manual from the VRE and successfully uses it to begin developing his intervention. However, he now wants to do something in his intervention that he can't find mentioned in the manual

### Scenario

Aaron remembers seeing a ‘Help discussion board’ when he had printed the manual and logs back onto the VRE to find it. He searches the existing discussion topics and although he doesn't find details of performing the function he is looking for he does find some useful tips that he had not been aware of and makes a note of these. As there are currently no posts about performing the function he begins a new thread asking if anybody knows what the logic would be. The next evening he logs back onto the discussion board and finds an answer from Johann, a psychologist in Northern Europe telling him how he had done this in his intervention. He has typed out his logic and invites Aaron to copy and paste it into his own logic file and change the page and interaction names to match his intervention.

### 3) Simon

#### Persona



Simon is a health professional in his 50s and works at Bristol University leading health-related research, including internet intervention development. He is not very technology-oriented and does not have time to learn how to use new technology, but needs to be able to view and comment in detail on interventions his junior staff have created. He would also like to showcase his interventions to international colleagues and enter into open discussions about them. He is cautiously enthusiastic in principle about using the VRE, but is concerned that there must not be barriers to using it for those like himself and his colleagues who will only have an occasional need to do this, and do not have the time (or patience!) to become familiar with even slightly complex new procedures. He wonders whether it will not just be easier to ask his junior staff to email sets of screenshots or similar to him and his international colleagues, and needs to be persuaded that the cost-benefit ratio of using the VRE will be superior to this.

#### Scenario

It takes Simon some time to find the intervention that his researcher has uploaded to the VRE but once he has found it he is able to comment on each individual page or on the intervention as whole, which although he thinks this is useful, he finds it frustrating trying to view the intervention in the small box on his screen. When he enlarges the page he still can't see the whole screen and he loses the capacity to spontaneously write comments at the time of the viewing the page because when he tries to comment the full screen shuts and the intervention starts again from the beginning. This confirms his belief that it would be easier for him to comment on screenshots. Simon struggles to see how he might invite his international colleagues to view interventions without already being registered on the VRE. He would also like to upload his research papers on online interventions but cannot see how this might be done.

#### Requirements/issues

- How will Simon invite other researchers to view his interventions/how will the junior staff invite Simon to view their intervention? – how will they go straight to his intervention without having to wade through other (irrelevant) information?
- Need some parity between viewing and commenting at the same time
- Could registering put people off of viewing interventions? Perhaps we need to make the registration page explicit about the FREE software and that the demos are easily accessible once registered.
- Ability to put up published papers.

### 4) Jackie

#### Persona



Jackie is 30 years old and currently working on her PhD at Cardiff University. Her project involves developing and testing an online intervention assisting diabetics to manage their lifestyle. Jackie has no experience of developing any kind of web resource but would describe her computer skills as “adequate”. With some help from using the help-files she has now put together the first version of session 1 of the intervention. Jackie would now like the rest of her research team, including her supervisors, to comment on this session.

### ***Scenario***

Jackie exports session 1 from the authoring tool so that she can upload it onto the VRE. She has already registered for the VRE when she downloaded the authoring tool so she logs in to upload the files but finds she can only view demos but can't upload her own. After contacting the LifeGuide team to ask how this is done she is given permission to upload her intervention. The first time she tries to upload the intervention she accidentally uploads an older version. It is not clear to Jackie how to delete this version from the VRE so she simply uploads the more up-to-date version as well.

Jackie now needs the rest of the team to be able to access the intervention to view it and comment on it. She is confused about what category her intervention falls into (“development”, “demo” or “live”) as there are no clear instructions. She decides to go with common sense and categorises her interventions as “development”.

Now, Jackie needs to work out how to enable her research team to view and comment on the intervention. She notices that there is an option to add other researchers who have already registered for the VRE. She tediously scrolls through the list to see if her supervisory team, clinical experts and expert patients are already registered but apart from finding two people with the same name as her second supervisor cannot see them registered. She then e-mails her team with a link to the VRE asking them to register and asking them to let her know once they have done so, so that she can then go through the list again and find them. Jackie can't help wondering if there is an easier way of adding people to her team than this.

## **Requirements/issues**

- Need to think about how users are given rights to upload their interventions.
  - If they need to contact a moderator beforehand we need to provide sufficient information about how they should do this. – How will we judge if an intervention can be uploaded?
  - Would it be simpler to give all registered users the ability to upload interventions after they have agreed to some terms and conditions that set out our policy on ethical, inflammatory and sensitive interventions and our right to remove interventions and close down accounts if the terms and conditions are breached??
- Need instructions about the difference between “development”, “demo” and “live” interventions and what each one should/can be used for.
- Need to make the delete function more explicit.
- How can users easily invite people to view their intervention?
  - Could we have an “invite team members” option where intervention authors can type in the e-mail addresses of their team and send them an invitation to register – that then takes them through specifically to the intervention that they have been invited to?
  - Important to consider the convenience and ease of use for those who may be brought onto the team so it is important that people can go straight to the intervention that they are helping with without having to wade through any information that is unnecessary for the task in hand.
  - Do we want to make use of the “groups” idea that was used in MyExperiment?

## 5) Bob

### **Persona**

Bob lives in Cardiff and is 65 years old. He works as an engineer at the local hospital and enjoys spending time with his grandson. He was diagnosed with type II diabetes in his early 40s and has become an active member of patient experience groups for this condition. Bob has been asked to become involved as an expert patient in a study being conducted by Cardiff University. This study is using LifeGuide to develop and deliver an online intervention to help those with diabetes manage their diet and exercise. The intervention author on the research team has asked Bob to log into the VRE to provide comments on some of the pages that she has put together for the first session. Bob is an active member of a number of discussion boards for diabetes and even runs his own forum. He is looking forward to helping with the study but is hoping that the time it takes to use the VRE will not impact on the time he spends on his own site or the time he spends with his grandson.



### **Scenario**

Bob has received notification from Jackie, the intervention author, asking him to log onto the VRE and comment on her intervention. He is able to then register and log onto the intervention group and comment on the session that has been uploaded. He is able to play through the whole of session 1 and can comment on pages at the same time, but finds it frustrating having to scroll down and across on the screen to see the whole page. He can see that beside some of the pages there are some comments from some of the others on the team. When he gets to page 7 he notices a comment from the clinical expert on the team correcting the intervention author on her use of terminology. He disagrees with this and he clicks on the comment box and writes down his preferences at the same time as viewing the pages. His comment is threaded onto the clinical expert's comment clearly indicating who posted the message and what page he was viewing when he posted it.

## 6) Marsha

### Persona



Marsha is 36 and Australian, and as a nursing researcher has experience of developing many paper-based patient education tools. She would like to convert these into web format but has no resources to do so, and no technical skills. Having read about LifeGuide as a free set of software for doing this she has found her way to the VRE, hoping that she will just be able to download the software and use it just like PowerPoint. However, she has initial difficulty getting the tool to function on her PC, and struggles with the first demo. She is used to following manuals and attending training workshops when learning to use new software, and has never previously used discussion threads to find solutions to software problems. Since she is unable to attend training workshops in the UK she is pessimistic about whether she will be able to master using it.

### Scenario

Marsha posts a request for advice on the discussion boards but cannot understand the technical replies she receives. With a few more attempts at explaining the problems she's having she gets a reply from another researcher working in the health system explaining the problem that they had with obtaining access rights to use the software and some suggestions for overcoming these. Although these suggestions work, the frustrations that Marsha experienced with trying to get help in a virtual discussion board is beginning to put her off the idea of using the LifeGuide software. Although she has now downloaded the help materials she does not feel confident that she can develop a full intervention without the help of programmers.

## **7) Johann**

### **Persona**

Johann is from northern Europe and in his 20s. He is just completing a PhD on internet interventions, working as part of a large team. He is looking forward to developing his own projects and ideas in the field and sees LifeGuide as one potentially useful way of doing this, particularly in terms of pilot and side projects. He has worked on very well-financed internet interventions, and is aware of the limitations of LifeGuide compared with those he has worked on previously, which incorporated serious games, avatars etc. However, he is an avid Internet user, has well-developed amateur software skills and is an enthusiastic supporter of open source



### **Scenario**

Johann uses the discussion boards to discuss his ideas on internet interventions. Although he is critical of the limitations of the LifeGuide project he is nonetheless a constructive member of the VRE community, posting comments and links regularly, and suggesting ways of overcoming limitations to other users on the community. He is also able to discuss intervention research with future collaborators therefore allowing him to strengthen his own ideas. Unfortunately, Johann wants to share the intervention that he created in his PhD that did not use LifeGuide but can't see any way of doing this on the VRE.

### **Requirements/Issues**

- How can non-LifeGuide interventions be shared?



## 8) Lars

### Persona



Lars is a health psychologist who works in Germany in the field of obesity. He is keen to develop an online intervention but he doesn't really know where to begin with developing online resources and doesn't have a large research budget. He has been communicating with a research team in London, the Obesity Research Group (ORG), who have already developed and tested an online intervention using LifeGuide. The results from their trial indicated that the intervention was effective and they are now keen to test the intervention in other countries. Lars and the ORG are hoping to use the VRE to enhance their collaborative work.

### Scenario:

The ORG send Lars an invitation to log onto the VRE and view the demo version of their intervention. They have also posted up their paper of their pilot study which shows promising results.

Lars is impressed with the intervention as it is exactly the type of intervention that he wants to create. The ORG and Lars' research team decide to collaborate to test the intervention in Germany. This requires Lars to translate the site into German. Lars downloads the authoring tool from the VRE and then downloads the intervention files into the workspace. He then imports the intervention file into the authoring tool and spends the next couple of weeks translating the whole intervention into German by simply changing the text in the text boxes. In only three weeks, Lars now has a working intervention that is ready to be piloted.

Lars can spend more of the research budget piloting and testing the German version of the intervention as he has not had to cost in for programmers or had to spend time developing the intervention from scratch. He has more time to recruit a larger sample and to conduct a follow-up study of the intervention which leads to more significant results.

## 9) Megan

### Persona



Megan is 29 and is working on an intervention aimed at addressing people's anxiety issues. She has managed to pick up and use the authoring tool with no problems and has successfully completed the development and testing of the intervention.

Megan is collecting sensitive information about people's anxiety. She is dubious about the security issues of hosting her live intervention on the VRE site. For ethical reasons she is also uncertain about who will have access to the data that she collects; she questions whether the programmers involved can access this information and also wonders whether other members of the VRE will inadvertently have access to the data.

### Scenario

Megan has read somewhere on the VRE site that interventions that deal with sensitive and personal information should be hosted on the researcher's own server. However she:

- a) Has no idea how she would begin to go about this (or really what this means)
- b) Has valued the capability of allowing her research team to comment on the intervention whilst it was in development and now would like to demo her intervention and allow other researchers to comment on it.
- c) She is aware that research is being conducted that is analysing successful components of online interventions. This research is using the interventions that have been uploaded to the VRE and she would like her research to be included in this study.

Megan does not know what to do about making her intervention live.

### Requirements/issues

- Are there any important security/ethical issues that we still need to consider including any specific to using the VRE as opposed to using LifeGuide?

## **10) Harry**

### **Persona**

Harry is 47 and works as a doctor in the Netherlands. He is working on a project that involves conducting a meta-analysis of the intervention components used in delivering online smoking cessation interventions. Based on previous smoking cessation and offline intervention research Harry and his colleagues have collected a list of possible components (e.g. health change models and techniques) that have been used in interventions. He registers for the VRE to allow him to download research articles that users have posted about their intervention research and to view demos of the interventions.



### **Scenario**

After registering for the VRE, Harry searches through the demos that are listed on the VRE to find those specifically related to smoking cessation. Once he has found the seven interventions that are being demoed on the VRE he can contact the intervention authors to discuss their interventions in more detail. He then follows the link on the VRE that includes publications about online interventions to find any other details about online smoking cessation research. Harry wonders if there could be a search option so he could find articles and interventions that are specifically related to smoking cessation or if all of these interventions can be grouped together somehow.