UNIVERSITY OF MANCHESTER
COMMITTEE ON THE ETHICS OF RESEARCH ON HUMAN BEINGS

Application form for approval of a research project

1 Title of project

Senior Citizens on the Web 2.0 (SCWeb2)

2 Chief Investigator

Title: Mr
Forename/Initials: Darren
Surname: Lunn
Post: Research Assistant
Qualifications: BSc (Hons) in Computer Science; MSc (Distinction) in Advanced Computer Science
School/Unit: School of Computer Science
E-mail: darren.lunn@cs.manchester.ac.uk
Telephone: 0161 275 6239

3 Details of project

3.1 Proposed study dates and duration

Start Date: May 2009
End Date: December 2010

3.2 Is this a student project?

No.

3.3 What is the principal research question/objective?

When using the Web, elderly users are cautious and hesitant about making decisions that may be incorrect. This can result in a more stressful Web experience. The principal question of this research is that providing

automated assistance by a computer when users are faced with making a decision can reduce hesitancy and cautiousness and therefore provide a more stress free Web experience.

3.4 What is the scientific justification for the research? What is the background? Why is this an area of importance / has any similar research been done?

The number of the world's older population is expected to exceed one billion by 2020. As the population ages the financial requirement to work longer is increased but the ability to work longer is reduced due to the effects of ageing. The general effects of ageing include changes in attention, cognition and behaviour, all of which affect how people use the Web. Studies have shown that elderly Web users are more cautious and hesitant when faced with making decisions on Web pages. This is because elderly users perceive that the choice they make may be incorrect[1]. In addition, elderly users show difficulty in maintaining attention, focus and concentration on tasks where there is a lot of distracting information[2]

Some solutions for assisting elderly people have been proposed for everyday tasks. For example, Christopher concludes that providing assurance so that users do not believe they have done anything incorrect can assist older users in task completion and reduce stress[3]. Furthermore, Czaja suggests that assistance and assurance can help older people overcome hesitancy[4]. Edwards and Englehardt found that technology that assisted and assured older people was effective for general tasks performed using a computer[5]. However applying these solutions to elderly people using the Web has not yet been conducted. The aim of this research is to therefore demonstrate that providing assistance to older users as they browse the Web can be beneficial and provide a more enjoyable and stress-free experience.

3.5 How has the scientific quality of the research been assessed?

☐ Independent external review
☐ Review within a company
☐ Review within a multi-centre research group
■ Internal review (e.g. involving colleagues, academic supervisor)
☐ None external to the investigator
☐ Other, e.g. methodological guidelines (give details below)

The Human Centred Web Lab has a track record of devising and executing studies with participants. The procedure outlined in this project was reviewed by members of the lab before the final version was submitted to the committee.

[1] T. A. Salthouse *Theoretical Perspectives on Cognitive Ageing*, Lawrence Erlbaum Associates, Hillsdale, 1991

[2] M. Vercruyssen. movement Control and the Speed of Behaviour. In A. Fisk and W. Rogers, editors *Handbook of Human Factors and the Older Adult*

[3] P. Christopher. Older Adults – Special Considerations for Special People, 1999

[4] S. Czaja. Using Technologies to Aid The Performance of Home Tasks. In A. Fisk and W. Rogers, editors *Handbook of Human Factors and the Older Adult*, chapter 13, pages 311–334, 1997

[5] R. Edwards and K. Englehardt. AARP Survey Results and Their Implications for Service Robotics. *International Journal of Technology and Ageing* 2, 2:56–76. 1989

3.6 Give a full summary of the purpose, design and methodology of the planned research, including a brief explanation of the theoretical framework that informs it. It should be clear exactly what will happen to the research participant, how many times and in what order. Describe any involvement of research participants, patient groups or communities in the design of the research.

Aim: Senior Web users are cautious and hesitant about making decisions that may be incorrect. This results in a more stressful experience when browsing the Web. Providing assistance to elderly users as they use the Web reduces the hesitancy and therefore stress.

Equipment: A Galvanic Skin Response machine to measure stress levels; a personal computer; an eye tracker to identify where participants are looking on the Web page; and a Web Browser.

Procedure: Participants will be recruited via emails using the online version of the advert (see Appendix A) and also from the University of Manchester Open Day. Participants who agree to take part will be given an information sheet (see Appendix B) followed by a consent form (see Appendix C).

After agreeing to take part and providing consent a Galvanic Skin Response machine will be attached to the participant's index and forefinger. This device is a method of determining the stress levels of participants. Participants will be asked to perform common tasks on six Web pages. For example on the Train Ticket booking Website (`http://www.thetrainline.com/`), participants will be asked to book a train ticket from Manchester to London. Some of these pages will involve users being asked to perform search tasks without assistance from the computer. The remainder of the tasks will be performed with assistance from the software we have developed in the research lab. The tasks will be randomised so that they are notperformed in the same order by each participant. As the tasks are completed, the stress level of the participant will be measured as well as what areas of the screen the user is looking at. At the end of the experiment, participants will be asked to complete a short questionnaire (see Appendix D).

Confidentiality of the participant's records will be maintained. Participants will be given identity numbers, such as P1, P2, P3..., and records will be held in such as way that it will not be possible to directly match collected data with the participant.

3.6.1 Has the protocol submitted with this application been the subject of review by a statistician independent of the research team?

○ Yes - copy of review enclosed
○ Yes - details of review available from the following individual or organisation (give contact details below)
● No - justify below

Although this procedure has not been reviewed by a statistician it has been discussed with fellow researchers within the Human Centred Web lab who have experience in running studies of this nature.

3.6.2 If relevant, specify the specific statistical experimental design, and why it was chosen?

As we are interested in understanding the differences that arise from the different user groups being investigated (younger vs. older groups) we will use appropriate statistical methods such as 3×2 factorial ANOVA (age $\times$ assistance $\times$ task).

3.6.3 How many participants will be recruited?

We anticipate using three groups in the study: Young (18 – 49); pre-old (50 – 64); and elderly (65+). Each group will consist of approximately 15 participants.

3.6.4 How was the number of participants decided upon?

The number of participants was based upon participant levels used in previous studies conducted in the area.

3.6.5 Describe the methods of analysis (statistical or other appropriate methods, e.g. for qualitative research) by which the data will be evaluated to meet the study objectives.

In addition to comparing mean stress levels with and without assistance as a function of age and task, eye tracking data will also be used. This will be used to identify if the the additional information used to assist users catches their attention. The heat maps from the eye tracking data will be used to divide the page into segments. These segments are called Areas of Interest. Measures that will be examined include:

- The percentage of participants who fixate on the area of interest.
- The percentage of participants who fixate on the area of interest within x seconds of exposure.
- The order in which areas of interest are seen by the users.

These measures will help determine if the assistance being provided to the users is noticed and at what stage during the task do users observe the various areas of interest.

3.7 Where will the research take place?

The study will take place in the Usability Lab in the School of Computer Science (Kilburn Building) and at the School of Computer Science promotion stall (University Place).

3.8 Names of other staff involved.

Dr. Simon Harper, who is the principal investigator on the grant, will also be involved with the studies.

3.9 What do you consider to be the main ethical issues which may arise with the proposed study and what steps will be taken to address these?

Risks to participants are considered minimal. Steps will be taken to ensure that they are physically comfortable while they perform the tasks with the Galvanic Skin Response machine and that all data remains confidential.

3.9.1 Will any intervention or procedure, which would normally be considered a part of routine care, be withheld from the research participants?

○ Yes
● No

4 Details of Subjects

4.1 Total Number

Approximately 45 participants.

4.2 Sex and Age Range

Both Male and Female aged 18 years and above.

4.3 Type

Staff and students from the University of Manchester recruited via email and visitors during the University open day.

4.4 What are the principal inclusion criteria?

Participants should have some experience with using the Web.

4.5 What are the principal exclusion criteria?

The evaluation requires some basic Web experience, therefore those with no experience will not be able to take part.

4.6 Will the participants be from any of the following groups?

☐ Children under 16
☐ Adults with learning difficulties
☐ Adults who are unconscious or very severely ill
☐ Adults who have a terminal illness
☐ Adults in emergency situations
☐ Adults with mental illness (particularly if detained under mental health legislation)
☐ Adults with dementia
☐ Prisoners
☐ Young offenders
☐ Adults in Scotland who are unable to consent for themselves
■ Healthy volunteers
☐ Those who could be considered to have a particularly dependent relationship with the investigator, e.g. those in care homes, medical students.
■ Other vulnerable groups

The study will require any person with Web experience over the age of 18. Most of these participants will be healthy volunteers. The study will also seek to recruit participants over the age of 65, who may be considered as vulnerable.

4.7 Will any research participants be recruited who are involved in existing research or have recently been involved in any research prior to recruitment?

○ Yes
○ No
● Don't Know

As the risks associated with our studies are minimal, it is unlikely that involvement with our study will be detrimental to the participant, even if they are involved in other research projects.

4.8 How will potential participants in the study be (i) identified, (ii) approached and (iii) recruited?

Participants will be recruited via email through the University of Manchester volunteering email list. We will also have a stall at the University of Manchester Open day where participants can take part if they wish to do so. Posters will be hung by the stall to provide information about the purposes of the study and researchers from the lab will be present to conduct the study and answer any questions that potential participants may have.

4.9 Will individual research participants receive reimbursement of expenses or any other incentives or benefits for taking part in this research?

● Yes
○ No

Participants will be given £5 vouchers for their time and effort.

5 Details of Risks

5.1 Drugs and other substances to be administered

N/A

5.2 Procedures to be undertaken

Participants will be asked to complete a short questionnaire collecting demographic information about Web usage at the start of the study. It should take approximately 2 minutes to complete.

5.3 Activities to be undertaken

During the study, users will be asked to complete tasks on Web pages. Some of the Web pages will have been modified to assist the user. For a full description see Section 3.6.

5.4 What are the potential adverse effects, risks or hazards for research participants, including potential for pain, discomfort, distress, inconvenience or changes to lifestyle for research participants?

The experiments are short and the procedures and tasks are simple. We therefore do not envisage the participants facing any discomfort. The biggest risk is that participants become bored and frustrated, so we have kept the number of tasks to a minimum.

5.5 Will individual or group interviews/questionnaires discuss any topics or issues that might be sensitive, embarrassing or upsetting, or is it possible that criminal or other disclosures requiring action could take place during the study (e.g. during interviews/group discussions, or use of screening tests for drugs)?

○ Yes
● No

5.6 What is the expected total duration of participation in the study for each participant?

Each study will take approximately 10 minutes to complete. However from previous experience this may vary as some participants have voluntarily spent time discussing the work and results at the end of the study with researchers from the lab.

5.7 What is the potential benefit to research participants?

From previous studies, people have been genuinely interested in seeing the replays of the eye tracking data and have spent time discussing the results of the study.

5.8 What is the potential for adverse effects, risks or hazards, pain, discomfort, distress, or inconvenience to the researchers themselves?

There are no potential risks.

6 Safeguards

6.1 What precautions have been taken to minimise or mitigate the risks identified above?

To reduce the risk of boredom and frustration, we have kept the number of tasks to a minimum.

6.2 Will informed consent be obtained from the research participants?

● Yes
○ No

Each participant will be asked to sign a consent form at the start of the study. This will be countersigned by the person conducting the study. An example consent form is provided in Appendix C.

6.3 Will a signed record of consent be obtained?

● Yes
○ No

6.4 How long will the participant have to decide whether to take part in the research?

Participants are free to take as long as they like until the study closes.

6.5 What arrangements have been made for participants who might not adequately understand verbal explanations or written information given in English, or who have special communication needs?

We assume that all participants are able to speak English.

6.6 What arrangements are in place to ensure participants receive any information that becomes available during the course of the research that may be relevant to their continued participation?

As the experiments are quite short it is assumed that this will not be an issue.

6.7 Will the research participants' General Practitioner be informed that they are taking part in the study?

○ Yes
● No

This study will not affect the participant's health.

6.8 Will permission be sought from the research participants to inform their GP before this is done?

○ Yes
● No

This study will not affect the participant's health.

6.9 What arrangements have been made to provide indemnity and/or compensation in the event of a claim by, or on behalf of, participants for (a) negligent harm and (b) non-negligent harm?

Participants will be protected by insurance from The University Of Manchester.

7 Data Protection and Confidentiality

7.1 Will the research involve any of the following activities at any stage (including identification of potential research participants)?

- ☐ Examination of medical records by those outside the NHS, or within the NHS by those who would not normally have access
- ■ Electronic transfer by magnetic or optical media, e-mail or computer network
- ☐ Sharing of data with other organisations
- ☐ Export of data outside the European Union
- ☐ Use of personal addresses, postcodes, faxes, e-mails or telephone numbers
- ■ Publication of direct quotations from respondents
- ☐ Publication of data that might allow identification of individuals
- ☐ Use of audio/visual recording devices
- ☐ Storage of personal data on any of the following:
  - ☐ Manual files including X-rays
  - ☐ NHS computers
  - ☐ Home or other personal computer
  - ☐ University computers
  - ☐ Private company computers
  - ☐ Laptop computers

Any publication of direct quotations from participants will be anonymous and not associated to any individual.

7.2 What measures have been put in place to ensure confidentiality of personal data? Give details of whether any encryption or other anonymisation procedures have been used and at what stage?

Data will be identified by an assigned number. The participant's name will only be collected on the consent form, which will be separate from other data collection forms and not associated with the number in any way.

7.3 Where will the analysis of the data from the study take place and by whom will it be undertaken?

Analysis of the data will be undertaken by Darren Lunn and Simon Harper at the Human Centred Web Lab. Consent forms and questionnaires will be stored in locked filing cabinets located in the Kilburn Building Room LF1. Electronic data will be stored on password protected computers.

7.4 Who will have control of and act as the custodian for the data generated by the study?

Darren Lunn and Simon Harper

7.5 Who will have access to the data generated by the study?

The anonymous data will ultimately by made publicly available on the Human Centred Web Lab's data repository (`http://hcw-eprints.cs.manchester.ac.uk/`)

7.6 For how long will data from the study be stored?

Data will be stored indefinitely on the Human Centred Web Lab's data repository.

8 Reporting Arrangements

8.1 Please confirm that any adverse event will be reported to the Committee

We confirm that any adverse event will be reported to the committee.

8.2 How is it intended the results of the study will be reported and disseminated?

■ Peer reviewed scientific journals
■ Internal report
■ Conference presentation
☐ Thesis/dissertation
☐ Written feedback to research participants
☐ Presentation to participants or relevant community groups
☐ Other/none e.g. Cochrane Review, University Library

8.3 How will the results of research be made available to research participants and communities from which they are drawn?

Participants who show further interest in our studies will be able to provide their email addresses in order to receive more information about the studies. They will also be informed that the results will be made available on the project Website (`http://hcw.cs.manchester.ac.uk/research/scweb2/`).

8.4 Has this or a similar application been previously considered by a Research Ethics Committee in the UK, the European Union or the European Economic Area?

○ Yes
● No

8.5 What arrangements are in place for monitoring and auditing the conduct of the research?

8.5.1 Will a data monitoring committee be convened?

○ Yes
● No

8.5.2 What are the criteria for electively stopping the trial or other research prematurely?

Equipment failure or other unforeseen circumstances.

9 Funding and Sponsorship

9.1 Has external funding for the research been secured?

○ Yes
● No

9.1.1 If Yes, give details of funding organisation(s) and amount secured and duration:

N/A

9.2 Has the external funder of the research agreed to act as sponsor as set out in the Research Governance Framework?

○ Yes
○ No

● Not Applicable

9.3 Has the employer of the Chief Investigator agreed to act as sponsor of the research?

● Yes
○ No

9.4 Sponsor

N/A

10 Conflict of interest

10.1 Will individual researchers receive any personal payment over and above normal salary and reimbursement of expenses for undertaking this research?

○ Yes
● No

10.2 Will the host organisation or the researchers department(s) or institution(s) receive any payment of benefits in excess of the costs of undertaking the research?

○ Yes
● No

10.3 Does the Chief Investigator or any other investigator/collaborator have any direct personal involvement (e.g. financial, share-holding, personal relationship etc.) in the organisation sponsoring or funding the research that may give rise to a possible conflict of interest?

○ Yes
● No

11 Signatures of applicant(s)

....
Signed Date

12 Signature by or on behalf of the Head of School

The Committee expects each School to have a pre-screening process for all applications for an ethical opinion on research projects. The purpose of this pre-screening is to ensure that projects are scientifically sound, have been assessed to see if they need ethics approval and, if so, go to the relevant ethics committee. It is **not** to undertake ethical review itself, which must be undertaken by a formal research ethics committee.

The form must therefore be counter-signed by or on behalf of the Head of School to signify that this pre-screening process has been undertaken

I approve the submission of this application

....
Signed by or on behalf of the Head of School Date

A Email Advertisement

How Do People Interact with Web Pages?

We are looking for volunteers to take part in a study looking at how people interact with Web pages. During the study you will have your eye movements tracked whilst completing simple tasks on a series of Web pages. You will also have your stress levels measured to see how you respond to different parts of the page. This will be followed by a short questionnaire.

The experiment will take approximately 10 minutes to complete. and you will be given a £5 gift voucher for your effort.

For further information, contact Darren Lunn (`darren.lunn@cs.manchester.ac.uk`) or see:
`http://hcw.cs.manchester.ac.uk/research/saswat/SASWAT_info.php`.

This study has been approved by the University of Manchester Senate Ethics Committee (ref:)

B Information Sheet

How Do People Interact with Web Pages?

Aims of the Study

This study investigates the eye how people interest with Web pages. We are interested to see which areas of the page people look at and what response those areas may invoke in a user. This study is being conducted as part of a Leverhulme Trust project .

What Will I Have To Do If I Take Part?

You will be asked to complete a series of simple tasks on four different Web pages (whilst your eye movements are tracked and your stress levels monitored), and then fill in a short questionnaire about your Web usage.

You will have a stress measurer placed on your finger and thensit in front of the eye tracker, and have it calibrated to your gaze. The experiment starts on a page that contains a list of links to various Web pages. The investigator will ask you to complete a task on one of the pages. When you are ready, you should enter the specified page (by clicking the link with the mouse), and complete the task using the mouse and keyboard as appropriate. After you have finished the task, the investigator will return you to the starting page, and give you instructions about the next task.

When you have completed the tasks, you will be asked to complete a short questionnaire about your Web usage. An investigator will debrief you about the purpose of the experiment, and show you your gaze replay.

What Will I Receive If I Take Part?

The experiment will take approximately 10 minutes to complete. and you will be given a £5 gift voucher for your effort.

Will My Data Be Anonymous?

Yes. Names/identity will not be collected. Instead, each participant is allocated a number to identify his or her data. Names/identity will not be associated with this number in anyway.

Do I have to take part?

You do not have to take part in the study. If you decide to take part and then later change your mind, either before you start the study or during it, you can withdraw without giving your reasons, and, if you wish, your data will be destroyed.

C Consent Form

How Do People Interact with Web Pages?

The investigator has explained to me the nature of the research and what I would be asked to do as a volunteer, and has given me my own copy of the participant information sheets, which I have read.

I consent to take part as a volunteer and I understand that I am free to withdraw at any time without giving any reason, and without detriment to myself.

NAME (BLOCK CAPITALS): .....

Signed: ..... Date: .....

I confirm that I have fully explained the purpose and nature of the investigation and the risks involved

NAME (BLOCK CAPITALS): .....

Signed: ..... Date: .....

D Questionnaire

1. What Is Your Gender?
   - ☐ Male
   - ☐ Female
2. What Is Your Age Range?
   - ☐ 18 – 29
   - ☐ 30 – 49
   - ☐ 50 – 64
   - ☐ 65 – 79
   - ☐ 80+
3. What Is Your Occupation? _____
4. Are You Colour Blind?
   - ☐ Yes
   - ☐ No
5. How Often Do You Use The Internet?
   - ☐ Daily
   - ☐ Weekly
   - ☐ Monthly
   - ☐ Less Than Once a Month
   - ☐ Never
6. How Often Do You Use Google?
   - ☐ Daily
   - ☐ Weekly
   - ☐ Monthly
   - ☐ Less Than Once a Month
   - ☐ Never
7. How Often Do You Use National Rail Enquiries?
   - ☐ Daily
   - ☐ Weekly
   - ☐ Monthly
   - ☐ Less Than Once a Month
   - ☐ Never
8. How Often Do You Use iGoogle?
   - ☐ Daily
   - ☐ Weekly
   - ☐ Monthly
   - ☐ Less Than Once a Month
   - ☐ Never
9. How Often Do You Use Yahoo! Portal?
   - ☐ Daily
   - ☐ Weekly
   - ☐ Monthly
   - ☐ Less Than Once a Month
   - ☐ Never