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Investigating seniors on the web

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Acknowledgements

Abstract

The aim of this report was to investigate seniors using the web, looking at their attitudes towards the web, and examining any accessibility issues they may be faced with. A short interview was conducted focusing on two websites built specifically with seniors in mind. The results indicate that the majority of seniors would benefit from websites featuring more accessibility solutions such as a text enlargement button. It is recommended companies spend more time focusing on accessibility issues and solutions as well as gaining an insight into the users perspective throughout the design and development process in order to make the websites accessible to a wider audience.

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1. Introduction

This report will be investigating the necessary requirements a web application aimed at the older generation needs, this topic is worth investigating because in order to reach out to a wider target audience there are certain accessibility aspects which requires consideration.

The report will demonstrate a critical understanding of current techniques of task analysis, design approaches and user interface implementation with the specific age range in mind. The key issue that will be explored is the issue that not enough time is currently being spent on accessibility issues when designing and developing websites. In order to prove this theory an evaluation will be conducted using proposed evaluation techniques and evaluative criteria.

The report will assess the various trends in over 50's using the web; looking at statistics, and conducting research to discover what tasks and activities the older generation are currently using the web to achieve.

Research into the property industry in the Costa Blanca will be conducted, including investigating the incline and decline of people renting and buying properties in the Costa Blanca region and studyingpopular established property websites in the Costa Blanca to indicate what necessary requirements a web application of this type would need.

The report will then focus on reviewing technologies, looking at new technologies and exploring the current trends in technology.

The report will then look at methodology, describing the scope of the research and the different research methods used as well as describing the limitations and problems encountered during the experiment. It will then explain what tools and languages will be used and why.

To conclude the report will finish with a short summary.

The report is essential to gain a solid understanding of designing and developing for seniors as well as an insight into the Costa Blanca property industry. The findings of the report should provide a clear set of requirements for a web application for the Costa Blanca property industry aimed at seniors, in order to start the design and development stages.

2. Literature Review

2.1 Talking statistics

Research from the Office for National Statistics estimates that between 2011 and 2012 the annual growth rate of internet users in the UK aged between 35 and 44 was at 1% and the annual growth rate of internet users aged between 65 and 74 was at 9%. This demonstrates that the Internet is becoming more popular with seniors rather than middle-aged adults. (Nielson, J, 2013)

It is also important to consider the statistics in the US because the finished product will be available worldwide. A recent study shows that in the US there was an estimated 4.2 million internet users in 2002 who were aged over 65 and by 2012 there was 19 million, making the annual growth rate of internet users 16% between this period, whereas between 2004 and 2012 in the US, internet users between the ages of 30 and 49 only had a 3% annual growth rate. (Nielson, J, 2013)The Pew Research Centre found that in 2014 59% of seniors use the web and 47% have a high-speed broadband connection however that still leaves 41% of seniors not using the web and 53% not having a broadband connection. (Smith, A, 2014)

There are many websites that don't yet cater for the over 50's and this is the developers fault for not taking into account the usability guidelines for designing for seniors, but it seems when seniors encounter problems 90% of the time they would blame themselves whereas only 58% of young adults would. (Nielson, J, 2013)

2.1 Usage

It seems that seniors are now beginning to make the most of the web despite the usability challenges. A study shows the main activities seniors use the web for are health, travel, hobbies, news, finance, shopping and even social networking. (Nielson, J, 2013)

2.2 Inline and Decline

A report shows that "There are 'clear signs' that the Spanish property market has bottomed-out and that falling house prices will soon be a thing of the past." (EuroWeeklyNews, 2014a)This means that rental businesses will once again be booming because people won't be able to afford to buy outright anymore. The Instituto Nacional de Estidística (INE) states that house prices have now increased for the first time in six years. (EuroWeeklyNews, 2014b) However a current report shows that due to a fall in November house prices have once again dropped and from 2007 Spain has accumulated a 42.4% decrease. (Cowley, A, 2014)

The Costa Blanca holds some of the most beautiful blue-flag beaches and depending on what type of property you are looking for, the way the property market is going it looks like you could get long term and short-term rentals at reasonable prices, the Spanish National Statistics Institute state that renting a property is now cheaper than it was in May, as in July 2014 housing rental prices dropped by 0.8 percent. (EuroWeeklyNews, 2014c)

2.3 Interview Findings

In order to test how senior friendly websites designed specifically for seniors are, an interview was conducted with 5 participants over the age of 50. The evaluation plan can be found in Appendix E, discussing the criteria for the questions, the interview method and the instructions for the evaluation day.

During the interview conducted with the participants it was clear to see that even websites specifically aimed at seniors had accessibility and usability issues. The interview questions can be found in Appendix B.

The participants selected were all between the ages of 50-60 and all spent on average 5 hours per week browsing the web, however none out of the 5 participants had used the silversurfers website before and 2/5 participants had used the saga website before.

Looking at the silversurfers website 4/5 participants stated they found it easy to use due to the simple layout and large font. All participants found the content on the site readable however one participant did state "the site has too much content on some pages meaning it can be difficult to concentrate on reading a certain article."

None of the 5 participants found a way to enlarge the text, although this was not necessary due to the font size being rather large, one participant did say "if my eyes got any worse or if I didn't have my glasses I probably wouldn't be able to read half of it."

The colour scheme was a likeable feature from this website however the participants was torn between the navigation as a jQuery plugin had been used and 3/5 participants prefer to click the navigation to allow the dropdowns to become visible.

Looking at the saga website 5/5 participants said they preferred this website immediately, they all agreed the content was very readable and 4/5 participants noticed a way to enlarge the text within minutes of viewing the website.

Like the silversurfers website, the saga website had a jQuery plugin on the menu and although some participants still didn't like this feature, 5/5 participants said they preferred the navigation on this website as a pose the silversurfers.

After looking through some of the content on the saga website 5/5 participants stated they particularly liked the layout and colour scheme of this website and 2/5 participants pointed out the jQuery accordions as something they remembered from this website.

After conducting the interviews it was clear to see how important the simplicity of the layout was to the older generation, and the fact that less information on a page is sometimes better in order for them to concentrate. The resizable

text button was definitely a feature that stuck out to most of the participants so some more research into other accessibility features could be useful.

2.4 Reviewing Established Web Applications

Reviewing established web applications is a good way to work out what your website will need and how you can improve on the websites already out there in order to create something unique that will generate profits.

Owners direct is a popular holiday rental website which gives users the ability to managed the content themselves online, the website has some good advanced search features and a simple user interface. Users have to go through a quick registration process and then they can take full advantage of the website and what it has to offer. The fact that the registration process is quick is important because users don't like to fill out long forms and developers often overthink what information they need from a user, which can make registering a tedious process.

During the interview conducted with the client (questions and answers available in Appendix C) a question was asked to find out if there was a preferred property letting website already established and without hesitation owners direct was the answer. The client stated, "I like owners direct, it's easy to use, and all user controlled. However I find there are not many listings for the Costa Blanca region, most home owners I know in the Costa Blanca find it difficult to get interest on these types of websites which advertise properties from a number of different countries and regions. Most decide to go with an estate agent based out there, but this can be very pricey, the market needs something more specific.

3. Technology Review

Technology is forever evolving, so keeping up to date with the current trends is really important otherwise you can find yourself falling behind and therefore failing as a business.

PHP is a popular open source scripting language, powering over 30% of the web due to the fact It is easy to learn, free to use, it has a lot of freedom and support, it is quick and problems can easily be fixed, it has the ability to be object orientated and it has a number of pre-built frameworks to use. (Taei, P, 2013)

3.1 Looking at Frameworks

Skeleton is a popular development kit which combines a number of CSS files to allow the development of a fully responsive website with basic styled UI elements. (Getskeleton, 2014)

Bootstrap is a popular front-end framework which produces fully responsive web applications in HTML, CSS and JavaScript; it also includes a number of useful jQuery plugins and ready built templates. Incorporating bootstrap into a project can allow for a very professional looking website. (Getbootstrap, 2014) However Bootstrap also has some disadvantages for example because of the popularity and the one grid structure it can be hard to develop something unique (Blogoftheworld, 2014) Bootstrap also fails to follow best practices, it can be rather heavy and it can collide with existing set-up's. (Zingdesign, 2013) But on the other hand it saves a developer a lot of time, there is room for customization, and every template is fully responsive. (Blogoftheworld, 2014)

Over the past few years there has been a trend in developers using MVC frameworksto develop web applications. MVC frameworks consist of three sections the model which is the fundamental application, the view which is the display of the data and the controller which handles the user input. (w3schools, 2014)
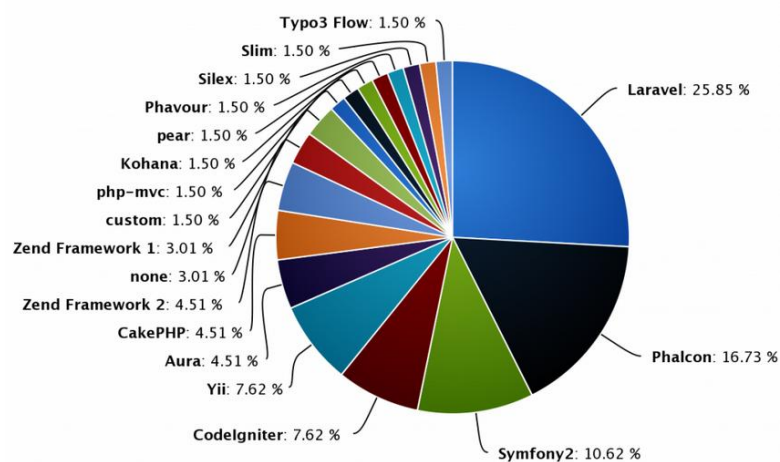

Figure 1: Framework popularity

Figure 1 (Skvorc, B, 2013) shows that in a recent study Laravel was the most popular MVC framework used with 25.85% of people backing this framework.

Due to the time scale of this project, it has been decided that bootstrap will be the chosen framework, as this has been used before in previous projects and it allows for a professional final product which can be developed in a short amount of time.
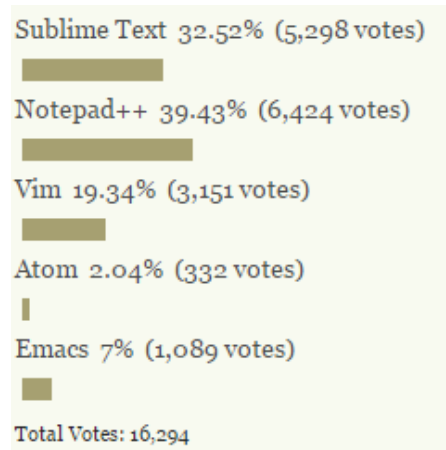
3.2 Looking at Tools

Figure 2: What's the best text editor?

In Figure 2 (Henry, A, 2014) demonstrates the most popular text editor amongst users is Notepad ++ closely followed by Sublime Text. Although Notepad ++ is free and has some great features, it is only available for windows OS, whereas Sublime Text is cross platform and even though Sublime Text states you are to require a licence there is no expiry on the evaluation copy of the software.

The development of this project will take place on a Windows OS and a MAC OS so the decision was made to download and use Sublime Text as the chosen text editor.

In order to manage and maintain the database PHP My Admin will be used, this was first released in 1998 and is used to handle the administration of MySQL over the web; this free tool allows users to easily manage their databases, as well as execute direct SQL statements. (Phpmyadmin, 2014) PHP My Admin has numerous features for example it allows users to create, read and dump tables in various formats, and allows data to be exported into various formats. It is also a great tool to control multiple SQL severs and allows for the management of the users and privileges, but the main advantage of PHP My Admin is the fact that it runs on any server that's capable of handling PHP. (Bin-co, 2014)

MySQL is a very popular open-sourced database management system however over the recent years there has been a decline in users and companies opting to use it.

There are a number of disadvantages of MySQL such as the fact that it is Oracle owned rather than company drive and it suffers from poor performance scaling in comparison to competitors, this is part of the reason Red Hat Enterprise Linux announced they would be changing to MariaDB along with Wikipedia back in 2013. (Endsley, 2013)However MySQL still remains popular and this is due to the number of advantages this software has for example it is easy to use, there are a number of support mechanisms in place, it is cheap and it is an industry standard product. (Mack, J, 2014)

3.3 Gathering the Data

In order to gather the data needed to produce the final product user experiments and interviews will take place throughout the design and development stages testing against readability, navigability and presentation.

Recommendations will then be made, solutions will be implemented, and the finished product will then be hosted live through one.com.

4. Methodology

A methodology consists of a number of actions, techniques, tools and documents in order to help developers plan, manage, control and evaluate their projects (Avison & Fitzgerald, 2006).

Conducting the literature review provided a clear set of requirements the final product desires. The participant interview was particularly useful as it gave an outlook on user's perspectives. It is clear that seniors are becoming more adaptable to the idea of using the web; there are just limitations on current websites making it difficult for them to access all genres available.

The technology review allowed for a thorough analysis of technologies which will be used throughout this project, assessing the advantages and disadvantages. It was also useful to review other people's opinions on these technologies and to discover what industries are using and why.

There are a number of different methodologies that can be used and it is important to select the right one for the project at hand whether that is a traditional, rapid or agile approach.

A popular traditionalsystems development life cycle is the waterfall model, which consists of a series of steps, which are carried out, in sequential order. (Wikipedia, 2014) This method is good because it allows the developer to break down tasks which is something this project will include, however the decision was made not to follow this method completely due to the fact it is a timely process and it does not allow room for amendments mid project.

Similar to agile approaches, rapid application development (RAD) allows for quick development and requires little planning. RAD became a popular methodology due to a British information technology expert named James Martin; he explained that RAD focuses on prototyping, continual testing and iterative development (Salem Press Encyclopedia, 2014).

Prototyping will be used throughout this project to gain invaluable information as to whether the product is meeting the criteria and needs of the chosen target audience. A prototype is a non-fully functioning model built for testing purposes, this is a good way to actively involve the users and detect errors before implementation even begins.

Throughout this project a mixture of the different methodology approaches will be used, the main method chosen is the RAD method due to the time scale of the project and the fact that the project is centred around a particular user group.

In order to prioritise the requirements the MoSCoW rules will be followed and thorough testing and alterations will need to be made during each stage of the project, however the main stages for the project will be based upon the waterfall method to ensure organization and allow room to break down tasks.

5. Summary

Throughout the research undertaken it is clear to see that with the use of PHP, bootstrap, PHP My Admin, and Sublime Text a professional holiday lettings website and content management system for seniors can be produced.

A methodology will be followed during the process for organizational purposes and references to the usability guidelines for seniors will be made throughout.

The results from the participant interviews undertaken showed that the layout and design of the website will be just as important as the functionality. The focus will be ensuring the layout is simple, the colour scheme is minimalistic, and the text is large and adjustable.

Some consideration will also need to be made when deciding which plugin's are used as a seniors perspective will need to be taken into account at all times.

In order to gain invaluable feedback regular testing with seniors will be conducted and the continual use of a test plan and risk assessment sheet will be used along with a checklist published by the national institute of aging.

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7. Appendices

7.1 Appendix A: Participant Consent Form

Conduct a semi-structured interview to evaluate the usability and user experience of two websites aimed at seniors (http://www.silversurfers.com**) and (**http://www.saga.co.uk**)**

Principal Investigator: Joanne Kennedy

THE PURPOSE OF THE STUDY

This usability study aims to evaluate the targeted websites. Thank you for volunteering to participate in the exercise, by doing so you are helping the University to better meet the needs of the students and its employees. This exercise is an important element in a programme of research into the usability of the web.

THE STUDY

Firstly I would like you to complete a:

1. **An Informed Consent form**
2. **User Profile Questionnaire**
3. **Semi-Structured Interview**

Any Questions?

I believe that there is effectively no risk involved in the participation in the proposed research. All participation in the research is entirely voluntary, and can be stopped at any time. At the end of each session participants will have the opportunity to comment on the way the research was conducted. Data will be held for research analysis by Leeds Metropolitan University. All personal data will be treated confidentially, and no one will be identified in published material.

INFORMED CONSENT FORM

I agree that by signing the attendance schedule I am agreeing to take part in the above Leeds Metropolitan University evaluation project. I have read the **Explanatory Statement**. To take part means that I am willing to:

▪ **Complete a user profile document**
▪ **Take part in a semi-structured interview**

A

Data Protection

I understand that any information I provide is confidential, and that no information that could lead to the identification of any individual will be disclosed in any reports on the project, or to any other party. No identifiable personal data will be published.

Withdrawal from being a participant in the study

I understand that my involvement as a participant is voluntary, that I can choose to withdraw my consent to be a participant in the evaluation part of the assignment without being penalized or disadvantaged in any way.

Date	Time	Full name	Signature

User Profile

Gender:
- ☐ Male
- ☐ Female
- ☐ Prefer not to say

Age:

Occupation:

Do you use the Internet?

(If yes to the above answer)
Which browser do you use on a regular basis?
- ☐ Internet Explorer
- ☐ Google Chrome
- ☐ Mozilla Firefox
- ☐ Apple Safari
- ☐ Other

Which OS do you use on a regular basis?
- ☐ Windows
- ☐ MAC
- ☐ Linux
- ☐ Other

On average, how many hours are spent browsing the Internet per week?

What are the main activities you use the web for?

Interview Questions

1. How easy did you find the silversurfers website to use?
2. How easy was the content to read on the silversurfers website?
3. Did you see a way to enlarge the text on the silversurfers website?
4. Did the find the navigation easy to use on the silversurfers website?
5. How did the silversurfers website initially make you feel?
6. How did you find the colours used on the silversurfers website?
7. What did you like about the silversurfers website?
8. What did you dislike about the silversurfers website?
9. Remember one thing about the silversurfers website?
10. Think of one thing that you would have liked the silversurfers website to have had?

11. How easy did you find the saga website to use?
12. How easy was the content to read on the saga website?
13. Did you see a way to enlarge the text on the saga website?
14. Did the find the navigation easy to use on the saga website?
15. How did the saga website initially make you feel?
16. How did you find the colours used on the saga website?
17. What did you like about the saga website?
18. What did you dislike about the saga website?
19. Remember one thing about the saga website?
20. Think of one thing that you would have liked the saga website to have had?

21. Which website did you like best and why?

Interview Questions

1. What do you want the business to achieve?

   - Give home owners in the Costa Blanca region the opportunity to advertise their properties online in a user controlled environment specifically aimed in the Costa Blanca

2. Is there anything specific you would expect from the website?

   - User Logins
   - Availability Calendar
   - Text resize button
   - Language translator button

3. Do you have a website for your organization already?

   - No, it has just been something I have been thinking about doing.

4. What target audience are you trying to reach? (Age range)

   - 50+
   - Holiday makers
   - Expats

5. Is cost a main aspect (Would you like a low-cost website)

   - Yes I want something low cost and easy to maintain.

6. Who are your main competitors in the area?

   - Keyro
   - Owners Direct
   - Inmobiliaria Nunez

7. Is there a website you like in particular?

   - I like owners direct, it's easy to use, and all user controlled however I find there are not many listings for the Costa Blanca region, most home owners I know in the Costa Blanca find it difficult to get interest on these types of websites which advertise properties from a number of different countries and regions. Most decide to go with an estate agent based out there, but this can be very pricey, the market needs something more specific.

E

To evaluate the usability, accessibility and user experience of the silversurfers and saga web applications. An examinationof the evaluation will take place on a desktop PC in order to generate accurate results.

The criteria selected to evaluate the two websites against werereadability, navigability and presentation.

Testing the websites against readability Is important because with age comes changes in vision for example loss of contrast sensitivity, loss of fine detail and loss of light that reaches the retina making it difficult to read the contents of a computer screen (National Institute of Aging, 2014).

Testing the websites against navigability is important because there are certain elements of navigability which needs to be considered when designing a senior friendly website for example simplicity of the navigation, carefully labelled links, the use of singular mouse clicks, the consistency, and the styling and size of the icons (National Institute of Aging, 2014).

Testing the websites against presentation is important because research indicates that with age the ability to perform certain tasks decreases due to information being processed at a slower rate; this is why the presentation of text and media is very important when aiming to provide a web application for seniors (National Institute of Aging, 2014).

The evaluation technique that was chosen was an interview in which 5 participants will be asked a number of questions relating to the two websites, this will hopefully provide a clear image as to what requirements websites for seniors needs to incorporate, in order to be usable and accessible.

There are four main types of interviews;unstructured, semi-structured, structured and group-interviews. After looking into the different types of interview techniques the decision was made to conduct a semi-structured interview for one of the evaluation methods, deciding on which interview technique to use was easy because a basic script with a mixture of open and closed questions was sought after, this type allows room to probe the interviewee for a more in-depth answer if required. (Rogers, etal, 2011)

1) Meet participant in a quiet room, there should be no disruptions from now on.
2) Thank participant for helping with studies and briefly explain how the interview will be conducted.
3) Hand participant a consent form they need to sign in order to proceed with the interview.
4) Hand participant a user profile to complete, and ensure the participants that they will remain anonymous throughout the study.
5) Ask the participant if they have any further questions
6) Begin the interview