

Web Design for a Target Audience

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ABSTRACT

The topic for this report is “Web Design for a Target Audience”. This topic was chosen as it is very important for us to design a website based on a particular target audience so that we can increase usability and user satisfaction. I started by searching for papers that help us define the target audience for a website that provides recovery information for Acute Coronary Syndrome patients. After identifying who the target audience is, I then searched for papers that explain how to design for that particular target audience (which is defined in this report as the elderly). The findings for this report include understanding the aging process and how it affects cognitive skills, and recognizing and designing to cater for the target audience in a way that improves usability. The aging process includes a decline in working memory, loss of vision as well as poor motor skills. It also involves a loss of spatial cognition which causes elders to feel lost when navigating a complex menu on a website. Other findings of this paper include how to design websites that are intended for medical education as well as other health-related design decisions.

INTRODUCTION

Designing a web site can be a difficult task as it can depend on the target audience the website is intended for. For this project, the website that we will be designing is an informative site for patients who were recently discharged from hospital after recovering from an Acute Coronary Syndrome (Heart Attack). The website will contain important information to help patients continue their recovery and provide guidance as to what to do and what not to do during this recovery period.

As this is a very important website that could potentially save the lives of people, it must be designed with care. We must ensure that whoever uses this website will be able to use it effectively and understand the information provided. In order to do so, we must first understand who our users will be; what demographic do they fall under? This is why I conducted a literature review on a paper that helps us define the type of people who are most likely to have a heart attack and therefore more likely to use our website. We must then consider all aspects of designing a website to cater for this target audience. This can include things like text, font, size, graphics, audio, interactivity and menu navigation. By ensuring that our users can use our website effectively, we can also ensure that users are satisfied with the user interface, and we can therefore help patients recover quicker.

The results that I have found are: the impact of age on website usability, realizing that elders can still learn a lot from using the internet, understanding the difference in computer performance across different ages, improving medical education website design and designing websites for elderly patients. Some of these findings are similar and have overlapping information, however they each offer different aspects and advice on how to design a website for elderly patients that are recovering from a heart attack.

Gender and age differences in chief complaints of acute myocardial infarction [1]

This study examines differences in gender and age in a population of 881 women and 1192 men who were hospitalized for acute myocardial infarction (AMI). In particular, this study shows the demographic of chief chest pain complaints and whether or not it was associated with AMI. The data used in this study is taken from the Worcester Heart Attack Study, which is an AMI registry that includes the population of Worcester in Massachusetts. The age groups were divided into 3: < 65 years, 65 – 74 years, and ≥ 75 years.

The study provided useful information and comparisons between different age groups. It is clear from the study that the age group that suffered from AMI the most was the ≥ 75 group. A table is presented with useful data that revealed that men and women over 75 years of age suffer from different types of heart diseases and failures than younger age groups. The second age group (65 – 74 years) also experienced a fairly high percentage of heart failure and AMI (However, not as high as the ≥ 75 years group).

This is useful information for our project, as it gives us a clear idea of the demographic that usually experience heart attacks. For our project, we will disregard differences between male and female and focus mainly on age differences. Both men and women tend to see an increase in the risk of experiencing AMI or any sort of heart failure during the ages of 65 and over. This tells us that our target audience for our website will be mostly elders who may have experienced heart problems more than once. Therefore, we must keep this information in mind when we design our website to insure that our users will be able to use it effectively and without any usability problems.

The Impact of Age on Website Usability [2]

There is a clear correlation between age and website usability based on the study by Wagner, Hassanein & Head (2014). The study focused on both functional and hedonic (pleasure-related) aspects of usability. There was particular

emphasis on the hedonic aspect as it represents user satisfaction with a website. The paper discusses the effect of age (both physically and cognitively) and how it causes users have lower satisfaction levels when using a website. For example, older adults experience a decline in vision, hearing and coordination skills. In order to increase usability for older adults, websites must use large fonts and have sounds that are within certain frequency ranges. It is also very useful to have a layout that requires less precise mouse movement.

The article also talks about the cognitive changes that occur as we age. The study has shown that elders have a reduced attention span, decline in memory and reduced spatial ability (an individual's ability to conceptualize relationships between objects in space as well as awareness of location within a space relative to other objects). This means that websites that are targeting this age group should contain simple interfaces with little or no distractions, provide memory cues and are easy to understand and learn. A decline of spatial ability means that users can often get lost while navigating a website, or not be able to navigate properly. This can be addressed by creating a simpler structure for the website.

Our project is concerned with the recovery of a patient who recently had a heart attack. Since the majority of patients are generally older adults, we need to consider how we will present this data to them in a simple way such that the website is highly usable. This article will help us design an interface that can reduce usability issues caused by the physical and cognitive problems that arise with age. For example, we can take into account the navigation of our website. It must be simple and understandable, otherwise the spatial decline of patients may cause them to be lost while navigating the website and thus resulting in poor usability and poor user satisfaction. Other aspects such as fonts and sounds will also be considered when designing the website.

You Can Teach an Old Dog New Tricks [3]

Senior adults tend to feel a significant decrease with social networks. Poor health and cognitive loss also impact on the reduction of social connection. This is known as a social barrier and can generally reduce the quality of life. Elders also experience physical constraints. They experience physical isolation due to the lack of distance and sometimes even the lack of transportation and mobility. This leads to a negative effect on the quality of life as elders feel that they cannot be active participants in the world outside their families or small communities. These are all problems that senior adults experience as they age, and this paper conducts a study on how the web can help seniors overcome both social and spatial barriers.

The results of the study show that using the web can preserve and extend social networks and therefore can help overcome social barriers, and thus improving the quality of

life for senior adults. Participants no longer felt that they were misplaced people and felt that they belong with the rest of the world. The web also removed the spatial barrier by allowing seniors to view things online that they couldn't normally see due to transportation limits. For example, a participant wished to see a gallery and look at art, but could not do so as they had no means of transportation. However they were able to look at art by viewing images online.

This article shows that the usage of web technologies can have an extremely positive effect on senior adults. Our project is concerned with helping patients that recover from Acute Coronary Syndrome to continue their recovery process safely by knowing what medications are needed and when to take them. Acute Coronary Syndrome is likely to occur to senior adults and therefore it is important to understand how seniors interact with the web and whether or not it has a positive or negative effect on them. Based on this study, it is clear that seniors who use the web have a positive outcome and can enhance the quality of their lives.

Differences in Computer Performance across Age Groups [4]

Computers are used for a variety of tasks by users of varying ages. These tasks include day-to-day functional tasks, entertainment, gaining knowledge etc. This goal of this study is to determine the performance of computer usage with time as it varies by age. As people grow older, certain aspects of information processing abilities do not correlate positively, especially at a senior age. This means that seniors experience a decline in processing speed, working memory and other sensory functions. Spatial visualization is also a major issue that affects the performance of elders using computer technology.

This paper shows that aging has shown to have an effect on computer use. For example, one of the technologies that seniors struggle with is the internet. Elders tend to show significantly lower navigational skills when compared to younger adults. Furthermore, some seniors experience difficulty with motor skills, which therefore affected their ability to perform certain computer tasks such as "point and click". The article also suggests that therapists need to have good awareness of these limitations that prohibit elders from recovering quickly from illnesses. Therapy sessions should include certain technology that trains elders on the use of computers to improve performance.

Based on this paper, it is clear that aging has a significant effect on computer performance (in particular, the use of the internet). As elders struggle with navigational skills due to a decline in memory and spatial visualization, it is important for us to consider the design of our website and ensure that it is easy to navigate. Elders also have problems with motor skills and hand-eye coordination. This is useful information for us, as we can design our buttons and interaction points to accommodate this factor. For example, we can use targets that expand to a larger size when users

hover over them. This gives users a larger area to click on and therefore reduces the amount of required motor skills to perform a certain task.

How to improve medical education website design [5]

This article talks about the importance of improving websites that are intended for educational purposes, especially in the medical field. It focuses on many aspects such as curriculum development, adult learning and website design principles. For this particular report, the focus will be on website design principles. The article recognizes six main principles for website design:

1. Use words and graphics in a balanced and contiguous manner
2. Use conversational style to text
3. Consider use of audio, but not that which is redundant to text
4. Avoid extraneous audio, graphics, hyperlinks, and text
5. Use realistic job context to teach problem-solving
6. Learners prefer to control the order of content, but beginners and complex material may require fixed progression through content

Websites that provide educational content should present that content in an interactive manner. This allows users to click on website elements and engage in the learning rather than simply reading large paragraphs of texts. Educational websites should also use an elegant combination of words and graphics to display information. It is important, however, to balance the use of graphics and words in order to avoid any overwhelming visual display. Each page of the website should feature basic navigation such as going forward, backwards, going to main menu, save, exit etc.

Our project is not entirely an educational web site, however it features a large amount of medical information and instructions and therefore may fall under a similar category. It is important to make use of these website design principles that are recognized by this article. When designing our website, we should use a variety of text, graphics and maybe even audio. However, we should maintain a balance so as to not overwhelm the user.

Website design: Technical, social and medical issues for self-reporting by elderly patients [6]

This article discusses the importance of designing a healthcare information website specifically for elderly patients. It features a case study of such a website. The article recognizes the increase in usage of the internet by patients for any health-related issues. This is due to patients requiring certain healthcare information without needing to visit an expert. It is important for websites that are directed at patients to have clear and unambiguous information. This is to avoid any confusion or providing misleading information which could potentially cause anxiety and

unnecessary stress for patients. Most importantly, the medical information provided on websites must be valid to ensure delivery of correct information to patients.

The results of this case study can be divided into 4 aspects. Firstly, it is important to note that most elderly users may be unfamiliar with web technologies and therefore websites should be designed in a way that does not require a large amount of technical ability in order to use them. Secondly, seniors may be hesitant to use web-based systems. A way to overcome this is to make the website simple and easy to use, with clear instructions. Thirdly, the medical information provided in the website needs to be simply explained in a way that does not require patients to ask for help when using the website. Lastly the article provides useful practical guidelines for the design of websites for elderly patients. These guidelines include removal of any barriers of use and allowing the website to operate on multiple web browsers and operating systems.

This article is very useful for our project as it directly addresses the target audience that we will be designing our website for. Heart attacks are more likely to occur to elders and therefore our main target audience will be seniors. It is important to understand the issues raised by this article as designing a website for elders is quite different to designing a regular website. We must ensure that our information is presented in a clear and unambiguous manner. Clear instructions on how to use the website will also be very useful when designing a website for elder patients.

REVIEW OF LITERATURE

The following table briefly summarizes the attributes of the literature used in this report. The table identifies the topics and themes in the literature and the differences and similarities between them. I will label the literature as follows:

Article A - Gender and age differences in chief complaints of acute myocardial infarction

Article B - The Impact of Age on Website Usability

Article C - You Can Teach an Old Dog New Tricks

Article D - Differences in Computer Performance across Age Groups

Article E - How to improve medical education website design

Article F - Website design: Technical, social and medical issues for self-reporting by elderly patients

Article	Topic	Effects of Aging	Spatial Awareness	Memory Loss	Motor Skills	Decline in Vision	Health-Related Design
A	Which age groups and genders are more likely to get heart attacks	x					
B	How age affects web usability	x	x	x	x	x	
C	Seniors can learn how to use the internet for their personal benefit	x	x				
D	How age affects computer performance	x	x	x	x	x	
E	Web design for medical education					x	x
F	Web design for medical information targeted to seniors	x					x

SUMMARY

After some research, I was able to identify the target audience to consist mainly of elderly people who have been recently discharged from hospital after experiencing an Acute Coronary Syndrome (heart attack). Elders experience physical and social impairments as they age. These include a decline in vision and spatial ability, memory loss and a loss of motor skills. This can therefore affect the way they interact with websites as they may not be able to see or navigate around a website. They may also struggle to click on small links or perform any type of action that requires a lot of motor skills. Therefore we must keep all these factors in mind when designing our website in order to increase usability and user satisfaction with our website. Our website must have a simple navigation menu that is easy to remember and does not cause the user to feel lost. It must have large fonts and a small number of actions to reduce motor skills required to use the website.

FUTURE WORK

The literature reviewed in this paper cover the topic of “Web Design for a Target Audience” very well. However, there are certain factors that could potentially be further researched. One of these factors is the regularity of computer usage for an elderly patient. It is important for us to design our website in such a manner that suits the usage time of a senior. If the website requires the user to spend a lot of time on it, elders may not be comfortable and this will lead to poor user satisfaction levels. Another important factor to note is the availability of the website to elders. Will elders be able to access the website at any given time? Do they have constant internet connection? These are important questions to consider when designing the website as elders may not be able to access the website on a daily basis.

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