

Proposed Personas

Editor's note: We need to confirm that we mapped from the user-needs that the challenges below cover the user needs.

We covered all the main user needs

Also we should clarify that the challenges are examples

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Anna a Student who has Dyslexia

Anna has been as student for the past year. Her Fashion Design course has been challenging but fun. She loves the creative aspect of the diploma and would rather be drawing than writing. She has moderate dyslexia, which affects her ability to read, spell and use numbers.

Anna had several projects to complete as part of her portfolio, but the one that worried her most involved a written assignment where she has to research the topic of Post-war fashions and their impact on today's designs.

Challenge 1: Finding technology to support password protection and support.

Her use of the library catalogue from home failed at the first attempt when she could not remember her password and kept putting in 'afib61' rather than 'afid16' and could not see the mistakes. The error message on the web page had not helped by announcing that her user

name or password were incorrect and she was not sure which one was incorrect. Luckily, as she was on her own laptop the browser settings allowed her to save her password and she was able to check where she had made the mistake.

Challenge 2: knowing documentation is accessible

Having navigated the online library system, Anna eventually found a paper on the subject but when she went to download the file she found it was in pdf format. She was hoping to use her text to speech app to have the content read aloud but when she tried to highlight the text nothing happened. She discovered the document was actually an image and yet there was no warning this was the case and she could not find an alternative accessible version of the paper. This meant she had to use optical character recognition to virtually scan the paper. It was not totally successful and took away valuable time from her writing.

Challenge 3: Filling in a form to ask for an ejournal article

Finally, Anna found an ejournal that had another article but there was a form that had to be completed. Anna duly started the process but realised she did not know the author's name. She returned to the page where she had found the article to copy and paste the name. Sadly when she returned to the form all that she had filled in was lost. She had hoped to just be able to add the final bit, not have to retype the whole thing again.

(Adapted from MOOCAP Erasmus + Persona CC-BY-4.0 http://gpil.eu/moocap/?page_id=33)

Maria who has a visual impairment and memory loss

Maria is 50 years old, married, and lives with her family in Madrid, Spain. Maria has macular degeneration, a disease that mainly affects central vision by causing "blind spots" directly ahead. She is also beginning to lose her memory but still works part-time for a local company

Challenge 1: dynamic website elements make key website information difficult to locate

Maria needs to gather the information online: she needs to run through reports about the company and use the company's website. As the blind spots in her vision have grown she is only able to read the headlines of web pages. She can no longer read the content without using magnification software, which enlarges a part of the screen so that she is able to read the text but the letters are so large that she often has to scroll around and then forgets what was written at the beginning of the sentence. The company's website looks fancy, has a modern user interface and a lot of dynamic elements that change when you hover the mouse over them. For Maria this site is a total nightmare! She finally finds the link to the data she needs as it appears when she happens to hover over a certain menu item with her mouse. The link is positioned in such a bad place that she did not notice it at first. She has found that it really helps if important interactive items are placed in the usual menu areas on a screen and the icons are clearly defined and easily recognisable.

Challenge 2: insufficient contrast between background and content

To speed up things and to relieve her eyes, Maria uses text-to-speech software that reads the company's balance report aloud. She has to take notes while listening to the information which can be hard and she needs to pause several times. The site has grey text on a dark grey background and it was not for her text to speech program she would have a hard time distinguishing between background and content, but when the text to speech says a number in an odd way she finds it extremely difficult to note down the correct figures. She would like to be able to adjust the contrast levels or to use high contrast mode on the web page without affecting the rest of her browser and computer settings.

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Alison - An Aging User with Mild Cognitive Impairment

Alison has a medical background, working in rehabilitation of physical injuries but has recently decided to work part-time to take up more hobbies and be with her grandchildren. She wants to try an online course to learn Chinese, in preparation for a special holiday. Alison considers 63 to be the new 36. However, she has difficulties in concentration and word finding often making typos and having to correct sentences when she re-reads them. She becomes easily frustrated as she finds learning new things is less intuitive and takes longer. Unfortunately, this includes learning how to use a new interface and affects the way she works when swapping between her tablet, phone and computer.

Challenge 1: Learning how to use new technologies and interfaces.

Alison took an evening course to learn how to use Windows and MS Word ten years ago and used to feel very comfortable with the interface. Then she had to renew her computer and all the updates meant that most applications looked very different. Now she feels that she has lost her self-confidence and when things go wrong such as selecting an incorrect button and an error occurring that she does not understand. She tends to think she cannot cope, so gives up but with support to adapt the interface to suit her needs she could learn to use the new interface. It was suggested that the number of menu items on the application toolbar were reduced so she could concentrate on the ones she regularly used and when searching for items on the web she made sure only a limited number appeared at one time.

She was also introduced to a de-cluttering browser extension that took away many of the advertisements and other items that cluttered her social media pages when communicating with her grandchildren.

Challenge 2: Correcting typos and writing fluently.

When writing letters and messages on her computer, phone and tablet Alison has got used to the need to pause every so often and check that what she is writing makes sense. She finds it very annoying having to work so slowly, but by using text to speech to read out content she has found she can hear her mistakes more easily than notice them on the screen. She has also discovered that this process can make reading web pages easier and less tiring. However, she often has to go over instructions several times before completing tasks online and depends on the fact that forms do not time out or she is allowed to extend the time to fill in the edit boxes.

Challenge 3: Coping with online banking and shopping.

Alison knows her math skills are not as sharp as they used to be. She is worried about making mistakes that will put her financially at risk and she is not sure she should be using her credit card, especially on line. Alison wants to feel safe and supported.

She has found that autocomplete has helped with form filling, but she tends to worry that what has been entered may not be accurate so has a paper based card with some of her more usual details such as phone number, address and post code. Secure information is held in a special folder and she has set up an agreement with the bank to limit spending on her credit card and mobile banking.

Jonathan – a therapist with dyscalculia

Jonathan is a massage therapist with dyscalculia. For Jonathan numbers are a foreign language. He can add simple numbers with his fingers and cope with very basic sums. However, he has no number sense with a particular difficulty with numbers that have a series of zeros and their relationship to each other such as 10, 100, 1000 etc. Complex calculations, symbols and mathematical concepts are very problematic.

Challenge 1: Coping with quantities when shopping online.

Jonathan struggles with the actual value of products, purchasing the correct quantities, for example when buying food at the supermarket and often orders far too much or too little when using online shopping carts. He has found it is so much more helpful to have symbols representing the proportional size of items per price or to have a warning when he has ordered an item that might be very large and therefore costly. He tends to save a shopping list that has been successful and where the amounts have been correct so that he can re-use the list on another occasion. Support has also come from his bank with restrictions on the amount he can spend whether online or using his mobile phone. This can be annoying but has stopped him becoming overdrawn.

Challenge 2: Remembering pin numbers and passwords.

The use of pin numbers and passwords that insist on a numerical number has always been an issue and most of the time Jonathan uses a secure password application when online. When it comes to the number on the back of his credit card (Card Verification Code) that is always required at the end of a payment exercise, he has to look it up each time but autofill has helped with the rest of the form filling. This is once he has made sure that what he originally entered and saved in his browser is correct. Too many times he has had to retrace his steps due to typos and not seeing that the entry was incorrect. This is when he finds it is essential that the corrections needed are clearly highlighted and the instructions are helpful when he has to return to the form. He also feels that it is important that not all the data has been lost, as the more often he types in numbers etc. the more likely he is to make mistakes.

Challenge 3: Sharing online spreadsheets with colleagues.

At work, there are times when Jonathan has to share a spreadsheet with a colleague to ensure that the group's accounts are in order, suppliers have been correctly invoiced and fees collected. The mass of numbers affects Jonathan's ability to concentrate on the various areas on the spreadsheet. He has found that it helps to use colour coding, increased spacing and larger font sizes in order to pick out the various elements. Jonathan will often use the comment feature to add something that he feels his colleague needs to check rather than correcting the actual spreadsheet. If the document is saved as a PDF or presented in another format, Jonathan insists that it is easy to use with his text to speech program which helps him to check how the numbers need to be said and that he can annotate the contents when using his tablet, especially if he is presenting numbers at a meeting.

Frank – a retired lawyer with dementia

Frank retired from his law firm in his early 60s when he found he was forgetting important items that needed to be discussed in his complex case load. He found that he was forgetting material that he had just read, losing and misplacing objects and having trouble planning or organizing events.

Challenge 1: Managing dates and booking holidays.

Frank noticed that he had trouble with online calendars and booking flights and hotels when he was planning his summer holiday. He could not work out the way the dates had to be entered into the form and made mistakes with the month and day. If only there had been a good example or tool tip. He also found that when he was booking a flight the table that had the various lists of airports automatically entered the initials, which was very confusing when he was

checking that everything was correct. Finally, there was the issue of making sure he booked the right number of nights for his hotel stay. He knew his arrival time at the airport was a day later than when he has set off but it would have helped to have had a calendar with colour and clear markings for the days in the week not just numbers.

Challenge 2: Coping with icons that are not recognisable.

Many web pages now have their own graphic icons and ways of indicating actions that need to be completed. Frank was having problems searching for information about a care home that he thought might help him in the future. He could not work out what the various options were when he came to fill out a form for his requirements. There appeared to be a series of small images beside the edit boxes, but the minute he began to write in the form the text explanation disappeared. He wanted the instructions to remain in place above the area where he was writing and for the box to be highlighted when he found he had missed some important sections.

Challenge 3: Support when using search engines.

Frank likes to surf the web for anything to do with fishing, his favourite hobby. However, he has found that the sheer number of items that appear when he types in a few words very confusing. Ideally he would like the number to be reduced and perhaps have some way of seeing the items categorised in groups so that he can work out which services he needs. In this case it might also be helpful to have icons appearing when the groups are listed, so that for instance he can see articles about fly fishing in one section and sea fishing in another. Blocks of text with more white space around them would also be helpful so that he is not having to cope with such a mass of text.

George – works in a supermarket and has Down syndrome

George enjoys his job and lives semi-independently in a small town, where he can easily find his way to around. He has problems using the online systems at work, and needs help to search for suitable videos or music. However, George finds it hard to use search engines and navigate around websites.

Challenge 1: Using Symbols for communication

George used to use [Makaton symbols](#) and gestures when at school, but is able to communicate relatively easily now, although reading and writing remains a challenge. Surfing the web is hard when most interactions require text input but George likes to watch videos, find images and listen to music as well as playing games online. Friends have set up links with recognizable

icons on his tablet and this has made it easy to visit his favourite sites. If recognisable symbols or icons could be used in more situations, George feels he would be able to reach more sites independently. There are search engines designed for children and these often use more images, but tend to be too childish for George's taste.

Challenge 2: Understanding netiquette and its impact on social media sites

George has been told about surfing safely and not giving out personal information and is very lucky that his family have set up his Facebook and Skype account with various privacy settings. However, George finds the way emojis change or new icons keep appearing on his message systems rather confusing and does not always realize what some of them mean. He has sometimes selected an inappropriate symbol and then receives a rather short message from a friend in return that is upsetting. He finds it hard to explain what might have happened. He knows there have been times when he really can't choose the right symbol because it is too small and he finds it hard to accurately hit the spot. George is then very worried as he does not know how to unlike or change his symbol choice. Interacting with emojis and other symbols needs to be much easier for everyone with easy ways of enlarging these features on touch and undoing errors.

Challenge 3: Controls on videos and popup windows.

Using a mouse is not easy for everyone and double clicking can take time to learn. George has worked hard to improve his mouse skills by playing many onscreen games, but he still finds it hard to move accurately enough to skip ads on videos or to track down the close/exit method offered by some popup windows. Once again friends have come to the rescue and enabled an ad blocker extension for his browser, but this does not always capture all the ads or prevent George selecting the submit rather than a cross or exit button on a pop up. There have been times when George has downloaded malware without any second warning appearing or been unable to reach a site because he cannot find the small cross on a transparent popup window that overlays the main page.

Challenge 4: Finding ways to read instructions

George finds it very hard to read instructions unless they use very short and easy to read words. He needs text that has been simplified. The best option he finds is when someone has taken the trouble to provide a summary of a paragraph with a well-known symbol and short bullet points and then a clear diagram or image of what is required. He finds videos with instructions usually go too quickly and he has to stop them, going back time and time again. But with a little bit of help instructions with well broken up sets of phrases using easy to read words can work well and he can go back to them when he has to remember how to do a particular task.

Amy is a Computer Scientist who has Autism

Amy loves her computer science course and now programs in several languages. She has discovered she can visualize the outcome of her coding and is quick to find any errors even if they have not been highlighted. Documentation writing is less fun and she tends to be rather too concise which means some users do not receive enough help using her applications.

Challenge 1: Coping with poor layouts and illogical navigation

Being able to code your own websites can make you very critical of others! Amy finds that she often feels quite confused by some social media sites that have dynamically changing content with random messages and advertisements. She either avoids these sites or tends to try to personalize them by clearing away the clutter and choosing to hide sections. Navigation that does not follow a simple route across an entire site really annoys her, as she feels this does not help anyone. She also finds that the habit of having too much information on some pages means that important items may be missed, if there is no clear and logical structure.

Challenge 2: Changing colour schemes, flashing, blinking and automatic playing videos or music.

When a page loads and animations or videos play automatically this causes real problems for Amy. Sometimes, the movement can be very distracting and the sounds alarming. She has always found that sudden noises or something happening unintentionally has been a problem. When designing her own applications and websites she makes sure all the controls for animated objects or videos are very visible and do not start until the user has decided they wish to interact or view the object.

Challenge 3: Designs that make use of abstract imagery and metaphors

Amy is always concerned about communicating clearly and finds it hard when people ask her to create a design that includes abstract imagery. Images that do not directly represent something make Amy feel uneasy and she tends to ask if there can be some explanatory text in case other users are confused. On the other hand, a figure of speech where someone has written something that is not literal makes her wish that the writer would use easy to read content as it is hard to understand the concept of, for example the wheels of justice turning slowly.

Tom is a traumatic brain injury survivor

Tom was involved in a very serious car crash that left him with some physical, sensory and cognitive disabilities having sustained a brain injury. He has now returned to his old company as a researcher and is back using the internet throughout his working day.

Challenge 1: Using speech recognition to navigate the web

As Tom has dexterity difficulties he sometimes uses speech recognition to work through web pages as he finds this method the least tiring of all the possible input options. Although his speech is slow, he is able to control his computer using speech commands and dictation. It is quite easy to use simple commands to control websites, although there are times when he forgets some of the commands and has to use his cheat sheet. Tom likes the scroll commands that allow him to read slowly down a page without using any other input device and he can often retrace his steps as he has to reread items. However, there can be problems if the forms on the website are not labelled correctly or buttons do not have clear names. There are aspects of form filling that Tom has had help to personalize, but if an element is inaccessible via the keyboard, he has to use the mouse grid to interact with that part of the site. This is a slow process and can be frustrating as Tom finds he loses concentration.

Challenge 2: Screen glare and eye problems

The bright white of a screen makes Tom's eyes feel very tired and he tends to use a virtual coloured overlay at times. This can successfully dull the overall view of a website, but problems arise if the pages have insufficient contrast levels and use small text because this affects readability. Difficulties also arise if the keyboard focus indicator is not visible as Tom moves around a site. Tom admits that he has become a slow surfer, but if a site is well designed and accessible, he usually copes and can still gather data as part of his job.

Challenge 3: Finding the right words to use for searching

Tom finds there are times when he spells words incorrectly and he appreciates support with error corrections or a system that accepts mistakes. He also has word finding problems when he is tired and search suggestions are welcomed, as are ideas that might be related to his search. However, too many results can cause concern and Tom admits he really cannot work his way through very long lists that have not been broken up with headings and categories.

Carolyn is a Yoga Teacher who has ADHD

Carolyn found concentrating at school difficult and when she got into college to take a course in business studies life became even more stressful. She knew she could cope with the studies but never seemed to get her work completed on time, found it hard to start a report and even to create a plan for a project. When working with others she always had good ideas but somehow they were never taken up and she became frustrated often failing to keep her feelings in check. Luckily, a tutor suggested she sought help and when a psychologist, mentioned Attention Deficit Hyperactive Disorder (ADHD) Carolyn was so relieved to have a reason for some of the planning and organisational difficulties she was having. She learnt that if she could make use of her constantly active brain and body as well as manage her time better, she could turn her hobby into a very successful Yoga business.

Challenge 1: Gathering key points from a heavy text based document or web page.

Carolyn could not really explain her apparent forgetfulness and not being able to focus or complete tasks, but she knew that if she came across a long document or web page with dense text she had to find the key points. If the web page failed to have a clear structure with a content list, well-spaced and highlighted headings she would be lost and lose concentration. Carolyn also said that if she was using her mobile she found advertisements appearing between chunks of text completely upset her focus and she had to stop reading. However, when there was good use of white space, recognisable icons linking to simple bold text clarifying the important points, Carolyn could target these areas and find out what she needed. A clear summary also provided clarity of understanding and Carolyn could remember much of what she had read.

Challenge 2: The power to stop scrolling carousels and banners

When setting up a new website for her business, Carolyn found an attractive template with several different ways of being able to show images of her exercises. However, she could not make the carousel of photographs pause, or a banner with her latest news stop scrolling. This really annoyed her as she found both items stopped her concentrating on the real content on the rest of the site. She thought that if it was upsetting her, what about her intended audience! She had to find a friend to add some code that not only added controls, but also stopped the automatic movement giving her website a calmness that she hoped her yoga teaching achieved.

Challenge 3: Losing focus when completing tasks

Carolyn enjoyed her Yoga teaching, but found that if she was developing some instructional materials for her website, online tools often failed to provide sufficient guidance. Unless there was a clear pathway and a way to return to the place where she was working, she often deleted items by accident or could not make corrections. Saving endless previews with yet more tabs being open in her browser caused anxiety levels to rise. It was not until she found a web app that made each task clear with a submit button, that saved her work in stages, that she was able to cope. Carolyn was able to see sections of her work in the correct order and could then manage the bite size chunks of instruction, rather than have to deal with it all at once. This made it so much easier for her to complete the exercise sheets and she became confident in her use of the application to the extent she was willing to purchase the pro version.

Sam was a librarian who had a stroke and Aphasia

Sam loved his work as a librarian. He had spent his entire life surrounded by books in peaceful places where he could research his love for history. In recent years, he had enjoyed using the web to explore how other people around the world saw the history of his own country and the changing views on famous people from the past. Now he was becoming depressed and very frustrated due to a recent stroke. The right side of his body was paralysed and he had difficulty having conversations with friends and family due to aphasia. To him this meant that some of his words were muddled, his understanding was not always as clear as it had been and worst of all; he could not read as fluently as he had in the past. One handed typing was slow and he found his word finding abilities often failed him.

Challenge 1: Having well-spaced text with words that are easy to pick out.

Despite all the difficulties, that Sam had with his beloved reading he was determined to improve and found that if a website had no clutter or background imagery he could read the headings. He also found that if there was adequate spacing and the text was not too complex, he could pick words out and with the help of text to speech understand the meaning. He did not like the sound of the synthesised speech, because he found it distracting having always read silently. However, over time, he learnt to enlarge the fonts and if the page had left justified text with uneven edges, he could find his way about by the different shapes of each paragraph. As he became more confident, he began to use some browser tools and was able to increase the line spacing and change the font style on some of his old favourite online historical documents.

Challenge 2: Using edit boxes where the instructions disappear

Sam had not expected to have to fill in so many online forms in order to receive some benefits due to his disability. They caused immense frustration and feelings of self-doubt due to their lack of clarity. Every time he had to fill in an edit box, if the instructions disappeared the minute he began to type, he could not remember what was required. He often had to refresh the page and start again to see the label in the box. Sam spent so long on the task that the page could time out or he had to print it out and get help. This was really upsetting as he wanted to be independent and it often reduced him to tears. This was very unlike him, but as the doctor explained, this was linked to his stroke. He also found it very frustrating when a particular way of providing information was required with no example as to how to complete the action. Worse still was when the error made was not clearly explained so correction was even harder. Dates, postal codes and phone numbers were a particular nightmare.

Challenge 3: Trying to activate elements that have been mis-recognised

The effects of aphasia with acquired dyslexia can be exhausting and confusing but most worrying for Sam was the sense of getting lost on a web page that he thought he knew. He admitted to being nervous when he could not pick out elements in a page that required an interaction. Sometimes he said he did not dare click on a button in case he did something wrong or was sent to somewhere without warning. Sam found this aspect of his web surfing very alarming, as in the past he had been able to navigate with ease. He discovered that the edges of shapes did not appear as clear as they should have been when people use pale greys and he missed links unless expressly highlighted. If a pop-up window suddenly appeared, there were times when he could not close it to return to the page. Small crosses became a nightmare and Sam stressed that the more things happened on a page, the more confused he became. He mentioned the fact that some sites were easier on his tablet as then it all seemed to flow one way and he could just scroll up and down until he felt happy with a decision.

Challenge 4: Coping with complex language

When text was written in the passive voice or in an academic manner with long complex words Sam struggled to sometimes understand their meaning even if they were in context. He also found, if he was required to use the same type of language in a form, that he had to copy the words as he could not always spell them and at times he used the wrong word. When he was able to use an app that enabled the text to be read aloud, he could cope if the language was clear and the sentences were kept short. He liked articles that were written in the active tense so he could understand the main ideas straight away.

Interesting links

<http://rosenfeldmedia.com/a-web-for-everyone/meet-trevor/>

Aegis Project Personas 2008-2012

http://www.aegis-project.eu/index.php?Itemid=53&id=63&option=com_content&view=article (licensed under a Creative Commons Attribution-Share Alike 3.0 License.)

Below are the personas developed for the AEGIS project.

Cognitive impairment

- Dementia/Alzheimer disease ([Peter](#) Vandezande (Multiple Sclerosis - memory loss - reduced dexterity))
- Dysarthria ([Emma](#) Karlsson (Dysarthria))
- Learning disability (LD) ([Nitesh](#) Sarin (Dyslexic and colour blind), [Adam](#) Ljung (Learning disability))
- Learning disability (LD) - Speech and language disorders ([Nitesh](#) Sarin (Dyslexic and colour blind), [Jane](#) Brown (Cerebral Palsy))
- Learning disability (LD) - Academic skills disorders ([Jane](#) Brown (Cerebral Palsy))

Hearing impairments

- Conductive Hearing Loss ([Emma](#) Karlsson (Dysarthria), [Edward](#) Hodgins (Hypoacusis))
- Sensorineural Hearing Loss ([Edward](#) Hodgins (Hypoacusis))
- Profound hearing loss ([Edward](#) Hodgins (Hypoacusis), [Tomas](#) Almaraz (Deaf))

Vision impairments

- Low vision / Loss of central vision ([Märta](#) Hansson (Macular degeneration))
- Low vision / Blurred vision ([Gert](#) Van Dijk (Partly blurred vision))
- Blindness ([Paulina](#) Reyes (Blind))
- Colour-blindness ([Nitesh](#) Sarin (Dyslexic and colour blind))

Communication received and producing impairments

- Expressive language disorder ([Carlos](#) Portillo (Moderate Aphasia - Paraphasia), [Wayne](#) Edwards (Global aphasia - short term memory loss), [Emma](#) Karlsson (Dysarthria))
- Communication disability ([Tomas](#) Almaraz (Deaf), [Carlos](#) Portillo (Moderate Aphasia - Paraphasia), [Wayne](#) Edwards (Global aphasia - short term memory loss), [Emma](#) Karlsson (Dysarthria), [Nitesh](#) Sarin (Dyslexic and colour blind), [Jane](#) Brown (Cerebral Palsy))

Upper limb impairment

- Cerebral palsy ([Mikel](#) Vargas (Spina bifida), [Jane](#) Brown (Cerebral Palsy))
- Multiple sclerosis ([Peter](#) Vandezande (Multiple Sclerosis - memory loss - reduced dexterity))
- Dystrophy ([Caroline](#) Combs (Muscular dystrophy))
- Absent limb/ reduced limb function ([Peter](#) Vandezande (Multiple Sclerosis - memory loss - reduced dexterity), [Ramin](#) El-Fassi (Dexterity problems), [Caroline](#) Combs (Muscular dystrophy), [Mikel](#) Vargas (Spina bifida), [Jane](#) Brown (Cerebral Palsy))

2 developers

- Software developer - [Benoit](#) Dupré
- Accessibility expert - [Clyde](#) Channing