In the Netherlands alone more than 300.000 <https://oogfonds.nl/onze-ogen/feiten-en-cijfers/> Dutch people have a visual disability. This doesn’t account for the near 9 million other people who need to wear glasses to get even a semblance of 20/20 vision. Or the estimated 100 to 200 thousand people <https://www.nji.nl/cijfers/autisme> on the autism spectrum, these people exist yet we refuse to take them into account when designing our websites. I want to explore what solutions exist to help these people and whether the websites I visit often are designed with the thought that every single human on earth should be able to access them.

So, for ***what*** do we design our websites? <https://exsite.ie/history-of-responsive-web-design/> In the early days of the internet there weren’t enough different types of monitors to necessitate a fluid and responsive design. Developers made websites for a select amount of pixel counts. This changed in the in 2000s with the market going open and different companies making different sizes of screens for desktop use. With this change the early versions of responsive design started showing up. With new units developed to scale with screen size and percentage-based scaling where a table, picture or column would take up 25% of a screen. 2010 came around and everything changed, mobile first design was already rising with iPhone being released 3 years earlier, but mobile access to webpages started skyrocketing and we haven’t looked back since.

But all these changes are done because the hardware changing around them. These changes weren’t made with the people in mind but with the thought of getting more clicks and keeping retention on your website as high as possible. So, for ***who*** we design our websites? <https://uxdesign.cc/how-to-design-digital-interfaces-with-every-disabilities-in-mind-19572579d7ef#d9c6> There are roughly 5 groups which need more attention to their needs in our digital age:

* Vision Impairment
* Deaf or hard of hearing.
* Autism spectrum disorder
* Physical disabilities
* Learning disabilities

For all these a wide range of solutions exists which we will go over and most of them might overlap, furthermore other less severe disabilities like near sightedness are not named here but should find improvements in accessibility if all or any of the accommodations are provided.

## Visual Impaired

<https://uxdesign.cc/tips-on-designing-inclusively-for-visual-disabilities-d42f17cc0dcd>

Vision impairments comes in different types which makes it a difficult challenge to overcome in web design. Examples are blindness both partial and complete, colour blindless, lack of contrast sensitivity and poor acuity a lack in vision sharpness.

There are multiple different techniques to help people with these disabilities to use the websites full functionality, and these can be divided into three categories:

1. Composition
2. Colour and size
3. Audio

Composition is easy, put important things front and centre and slowly branch out to less and less. Reduce clutter if possible and hide as little off-screen. A great example of readability in combination with functionality is Apple’s buy pages.

Graphical user interface

Description automatically generated

Front and centre is the product that you will be buying with the only other element being the buy menu. All options under a header are laid out and if clicked will bring you to the next section of buy process (Type -> Colour -> storage -> insurance) further when a new option is selected the big picture of the product changes to mimic the selected options. The buyer is never confused and will be guided through the process, this known as a step-through tunnel or a step-by-step tunnel.

Colour and size are the most common debated topics in the development process. But they rarely involve the needs of the visitor but more whether the design follows the company house style. Easy fixes are changeable fonts and zoom/enlarge buttons for text, but with the rise of AI and simulations developers can check if their page is safe to use for the colour blind and will not cause overstimulation. Both Firefox and chromium browsers have their built in the developer console with accessibility tab and chrome lighthouse respectively. But <https://www.w3.org/WAI/ER/tools/> lists over 167 different tools to help developers with this process.

Audio is last part and is easy to use if advertised correctly, text-to-speech is simple solution just let a voice read out what is on the page, yet companies might hide this feature behind a small button with a small icon which defeats the part of it becoming more accessible to visual impaired.

## Deaf / Hard of hearing

Sound and audio in web design space is a difficult topic, the days where a page would instantly give you an audio quip are luckily over, but when used audio is the best and most straightforward way to convey importance of an object. A classic example is receiving a new notification of message in combination with a simple bell sound and shaking bell icon over the messenger, both the vision impaired and deaf will now know that a message is pending to be read. So, what else can we do besides combine audio and visual.

There are two instances where lots of companies and institutes still fail on audio communications, the first is only providing service in audio. With the coming of support bots this has slowly been phased out, but some companies will still only provide support through phone calls. Extending this to video calls or simply giving the option to only use chat will help this group.

Second instance is videos, if your institute relies on videos on either YouTube or Local provide subtitles, translating and transcribing should be a standard and there are companies out there willing to do it for less than a euro per video.

## Autism spectrum disorder

Consistency and simplicity. Two words that mean a lot and can get you far in arguably the biggest range of groups mentioned. Like mentioned earlier composition of your page with the most important parts of your page front and centre with as little clutter around it as possible, keep it simple. Consistency can come in many different forms, using icons which are near synonyms with actions is important, the magnifying glass icon is synonyms with searching, the hourglass icon is better known as the loading icon, don’t try to change their meanings. Further if a large blue button always brings you out of the current page, don’t make a large blue button that now is used as a dropdown.

## Physical disabilities

Enlarge, enlarge, enlarge! If possible, make all your call-to-action has easy as possible to click but more importantly make them reachable using the tab key on a keyboard. A cool way to test if your website is tab friendly is putting all your developers on a keyboard only restriction and see how much they can reach without using a mouse.

On the topic of mouse avoid scrolling as much possible large swiping motions can be difficult to perform both dexterity wise but also, they will become tiring if needed to be used in small steps multiple times in a row.

Lastly automate as much as possible, retrieve information from the browser, former website visits, login information to fill in as much information as possible. Calendars shouldn’t force me scroll to the correct day, my phone already knows my exact location and if you cannot retrieve that try to get as much information as possible using as little possible. Using my postcode you can find in which city, street, and house number I live. So, why would I need to fill in those three before I fill in my postcode. <https://www.youtube.com/watch?v=hcYAHix-riY>

## Learning disorders

Analysing big texts is hard, but sometimes it is near impossible to reduce the size of these texts to a more condense version, besides completely translating these to a video format where a person can follow it along. You can try to implement a font changer, <https://www.dyslexiefont.com/en/typeface/> provides a font which is proven to help people with dyslexia to learn easier. Focus sans is another great font for people with ADHD.

# Canvas

Canvas LMS (Learning Management System) is a platform used by Fontys developed by Drieam where students can find all their courses including all content related to those courses. Student can login into the platform using their student account and if they are linked to a course, they will receive notification through email and on the platform itself. It supports a mobile app and a mobile version of the webapp.

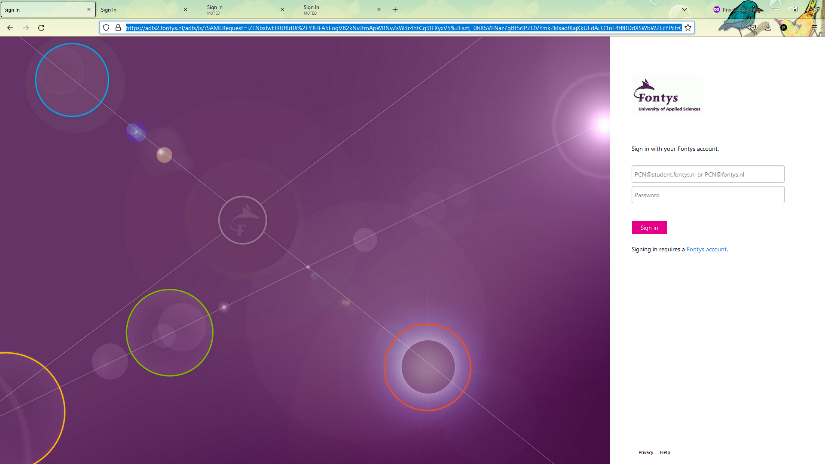
Canvas tested at Fontys ICT (FHICT) before it branched out to other courses within Fontys. <https://www.portfoliofontysict.nl/en/portfolio-2020/november-2020/fhict-assists-fontys-in-canvas-implementation/> And was chosen over 18 other LMS software solutions for its flexibility and its integration with both 3rd party tools like YouTube, Dropbox, and MS teams but also other software solutions from Drieam such as FeedPulse and Studycoach. The reason why FHICT was willing to test out this new system was as Eric Slaats from FHICT put it.

*For an average school, this subject is often complicated. We not only understand education, but also ICT. We are happy to put this extra knowledge to work for the whole of Fontys.*

So as a student with both access to FHICT Canvas and Fontys Canvas what are the current differences, what are the current problems with either version, how was Canvas communicated to the rest of Fontys.

A quick google search gives us that Fontys wanted to implement Canvas in 2021 which was likely delayed a bit due to the ongoing pandemic <https://www.fontys.nl/actueel/fontys-kiest-voor-canvas/> but this page isn’t meant for students as the 2 mentioned extra sources are guides for teachers, one a 7 year old video made by the company and the second an hour long guide on how to do everything. So, teachers are most likely informed but what about students. A useful guide made by the IT department is a 24 page pdf <https://fontys.edu/Nieuws-tonen-op-3/IT-guide-students-english-PDF.htm> with every single IT tool lined out for students, sadly as far as I know this document has not been directly shared through email or mentioned to students and is just passively sitting in a google search. Furthermore, the Canvas section of this document tells the user to ‘***’Go to canvas.fontys.nl and see what learning resources are available to you.’’*** Lastly the education on how to use Canvas has been tasked on the courses and section of Fontys themselves instead of Fontys as a whole or FHICT. With small, short educational videos provided by Fontys Kunsten and Fontys Hogeschool Theologie Levensbeschouwing for their courses.

But enough of the communication and let’s compare them to what we have learned about how we can use UX/UI to make webapps accessible to everyone. Starting with the login page, both FHICT and Fontys Canvas use the same login page with a different picture, with all login field lined out to the right, mimicking Twitter’s old login page.



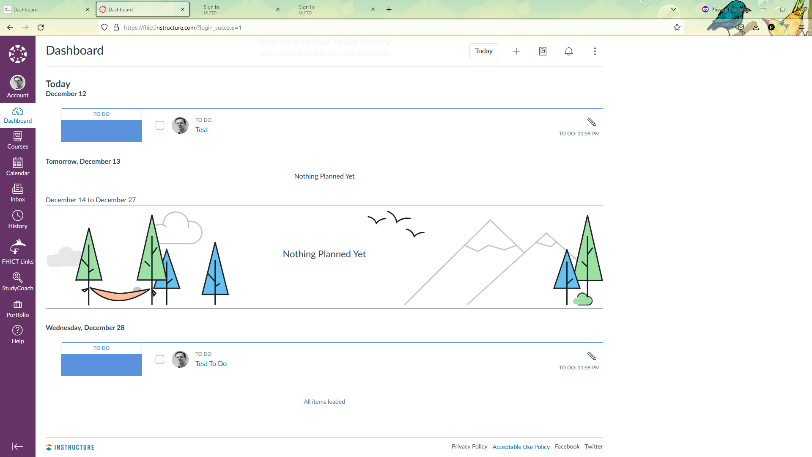
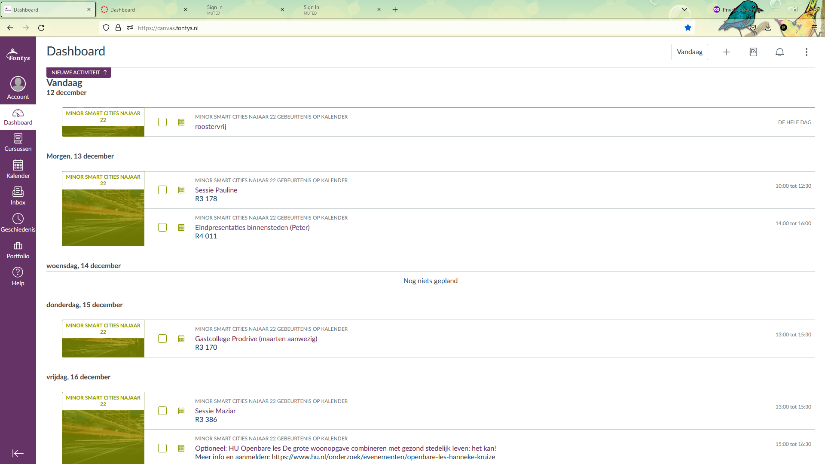
The page provides a link to what a Fontys Account is, but this link is outdated and does not work anymore bringing you to an empty 404 Fontys page. Once logged in you will be brought to the dashboard page with to the left the main sidebar where you can access everything in middle all your courses you attend and to the left all tasks.

Graphical user interface, application, Word

Description automatically generatedFirst the positives if you are enrolled in multiple courses, you can colour code them to your liking this will even translate to other parts of the website such as the calendar sadly not in task list on the right of the screen. Further you can change in what kind of format you want to display this screen using the 3-dot menu in top right. The three options are ‘’Chart Display’’ which is the default and seen in the picture below. Lastly when making a new appointment the current date and time will be automatically entered allowing giving a clear indication of what is expected in each field.

“Recent Activity” removes your courses and displays all missed notifications like announcements and grades. But the last option “List display” abruptly changes the complete user interface with no warning. It adds new buttons to the header to add new appointments, check notifications and a Today button. It takes the list displayed originally on the left and puts it across the screen, this is version of the dashboard is useful as it provides the most information in one go in an orderly manner but why it is drastically different from all other versions and never mentioned to the user besides the small 3-dot menu makes it difficult to justify its user friendliness.

The FHICT version of Canvas also as this problem where it doesn’t take the whole page, this might be because I am not enrolled in any classes or courses, but it provides no use case other than looking amateurish. Other problems both versions encounter is the “Show Button” button in the task list. This button in my expectations should extent the list to give me the next 30 dates, instead it changes the view to the “List Display” which was even more jarring than the original button.



Next is de Sidebar which we can already see in previous screenshots. Pressing Account will open an extra menu with additional links which will also be displayed on the accounts page, this allows for content to be chosen without loading in the full page. But comes with the drawback that the user must guess what the content might be. Lastly this menu also comes with a high contrast mode which is a great feature.

Right now, my expected outcome is that whenever I press a sidebar item an extra menu will be opened the next item on that last immediately tells me otherwise with it being an instant link to the dashboard. Which is confusing why not open create an extra menu with all three of the previously mentioned versions in here or a list to all courses that I am enrolled in or a list of all my current days tasks.

The courses button opens an extra menu again with all my courses needly in a list, and an extra button to bring me to all courses. The only thing missing might be a list of all previously enrolled courses these are available if you press the “all courses” button but not in the extra menu itself.

The calendar button is a direct link again which brings you to the calendar page. Same for the inbox button which gives your inbox. History opens another side menu which tracked your previously opened links in Canvas but doesn’t have a button to a complete history button.

Portfolio opens a 3rd party software made by Drieam, with a totally new UI/UX which isn’t related at all to the rest of Canvas, including a new Font, colour scheme and header.

And last on the default Canvas is Help which opens a side menu with different guides. Which is 17 pages long, includes an explanation on how to login which you can only access if you are logged in, and could probably be summarized in a 3minute video.

FHICT also provides StudyCoach which is useful for students and coaches to communicate what you are working on what could be better but has the same problem as portfolio that it has a completely new UI. Further FHICT has a button with useful links to other Fontys tools.

Graphical user interface, application

Description automatically generated