

Dyslexia & Visual Thinking

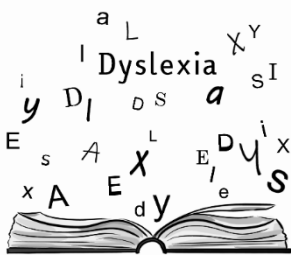
Transforming Education Through visuals

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Subject: Designing a way to enhance comprehension and retention of the content of educational materials for students with dyslexia using visuals.

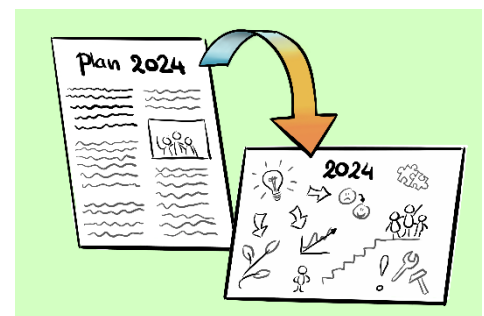


Visual – Dyslexia

This research was commissioned by De Tekenafdeling. In De Tekenafdeling's work lies a focus on solving problems together with its clients by using visual thinking strategies and drawing as a way to come to new insights and ideas. In the company, visual thinking is used as a way to make abstract concepts and information more accessible and understandable for its clients to help them come to new and original ideas. The assignment combines the subjects of dyslexia and visual thinking. It is known that dyslexic students often experience difficulties in education, due to education being heavily reliant on language and texts. This is where visuals come in as a solution. By creating a way to display written information in a visual form, this can help further improve De Tekenafdeling's background knowledge behind creating

visuals and visualizing texts.

Answering the research question: "What role do visuals play in enhancing the comprehension and retention of the content in educational materials for students with dyslexia?" The results of this assignment can be used in order to improve educational materials in such a way that these are more inclusive towards students with dyslexia. This way, students with dyslexia can reach their full potential in education, without being held back by their reading difficulties.



Transforming texts into visuals

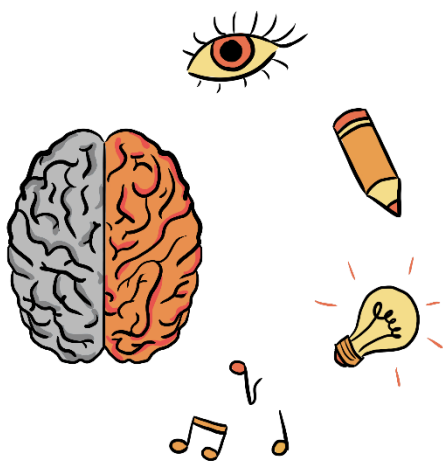
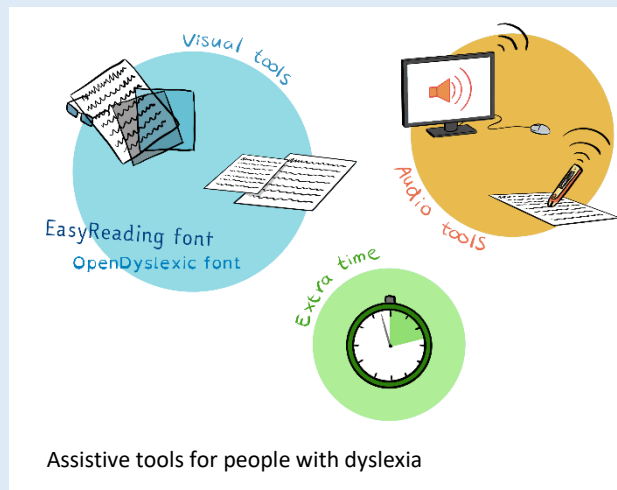
Approach

In the research phase it was found that the known signs of dyslexia regarding difficulties with language, are caused by a difference in the neurological decoding process which happens when reading. Because this difference causes them to be strong visual thinkers, this and other assistive tools for dyslexia were researched through a combination of literature, interviews with school teachers and through asking people with dyslexia about their experiences and preferences through a questionnaire. This was done to find the best ways to improve comprehension and retention of information for people with dyslexia.

Based on these research results, a list of design requirements was formulated, in order to guide the design process into the wanted direction. This was achieved using the research results to design a guide for transforming educational materials into a visual format. This guide was then applied to an acquired geography book, used in Dutch primary schools, creating a prototype visual lesson design.

This design was then tested by several students with dyslexia in order to be able to see the effectiveness of the design and evaluate the elements that still need improvement.

Through this evaluation it was found that multiple elements of the design could still be enhanced. These findings were implemented into the previously designed guide to form a final version of the Dyslexia Design Guide.



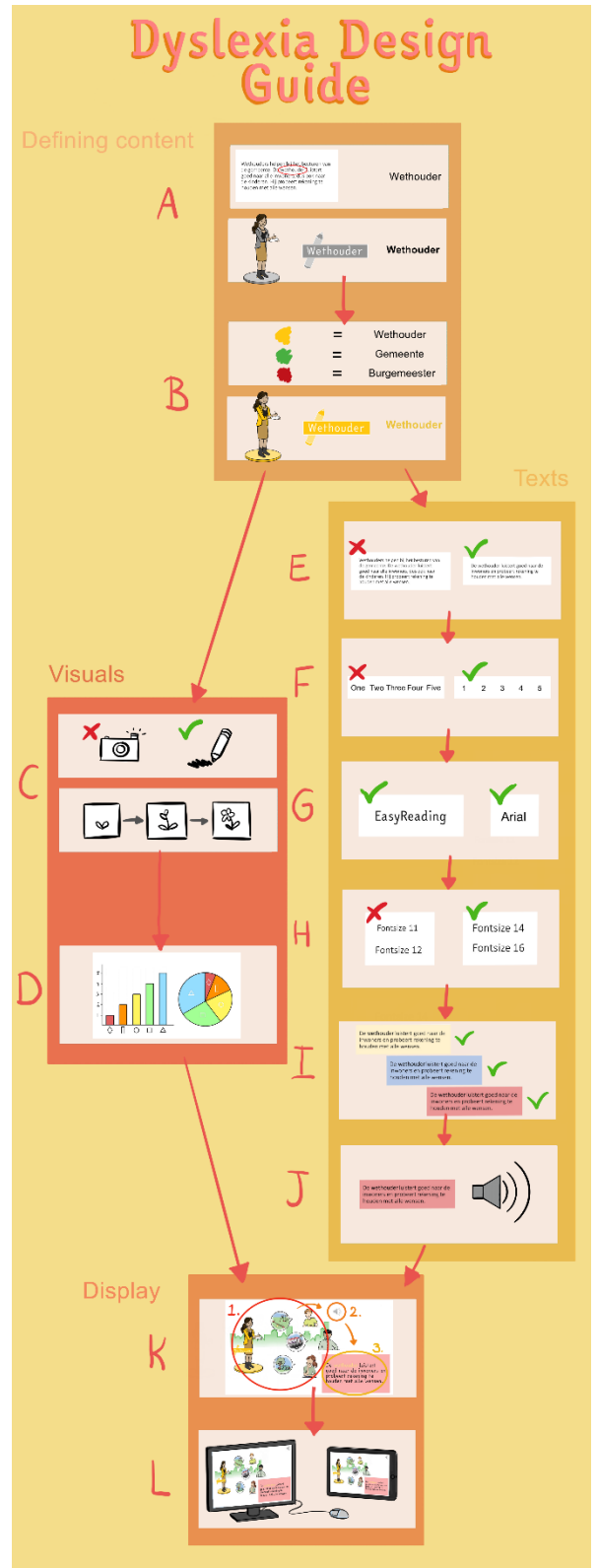
Strengths of people with dyslexia

This is a step by step guide which can be used to transform written educational materials of text based subjects such as geography, history and biology, into a visual format. The guide keeps in mind all found preferences of people with dyslexia regarding the display of texts, visuals and the way the educational materials are presented to the user. Thus, creating more accessible lesson content for people with dyslexia. A visual representation of the Dyslexia Design Guide was also created in line with this research around visualizing texts.

Conclusions and recommendations

Visuals play an important role for students with dyslexia. Influenced by a dominant right brain hemisphere, the neurological decoding process that is supposed to happen is influenced in people with dyslexia. This causes their difficulties regarding language, and strengths regarding visual thinking. In order to make more suitable educational materials, the most preferred and effective ways of displaying images and texts for people with dyslexia were concluded through research. These were developed into a guide which was applied to the content of an existing school book, to create a visual lesson. This lesson was then tested by students with dyslexia. The results of this test were used to further develop a complete Dyslexia Design Guide which is applicable to text based educational materials in order to improve the comprehension and retention of lesson content for children with dyslexia.

It is recommended to improve several elements of the design based on a more extensive testing phase regarding the audio function and usability of the guide on a larger scale.



The visual Dyslexia Design Guide