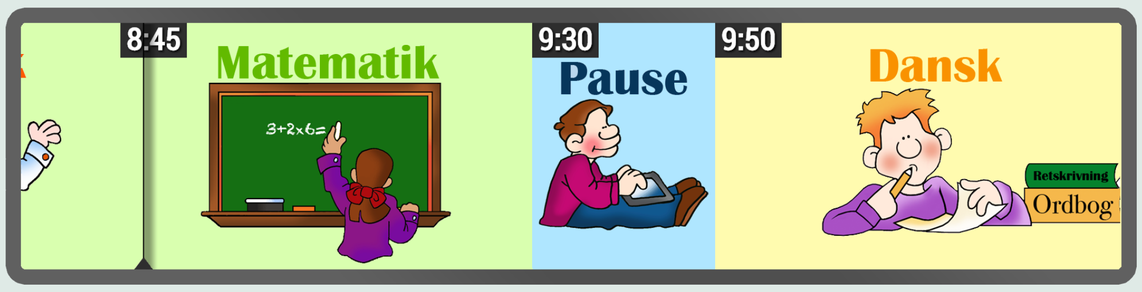
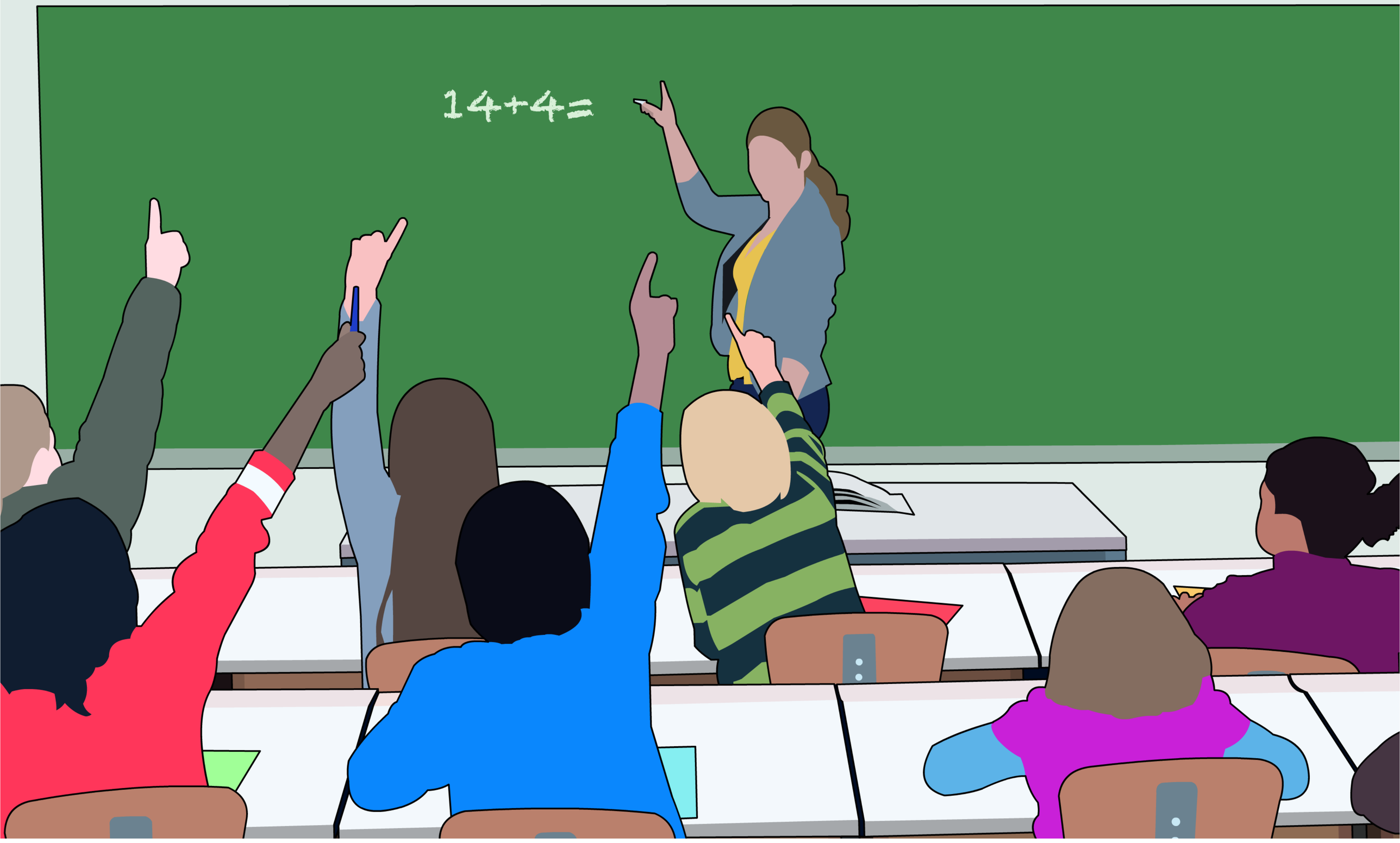
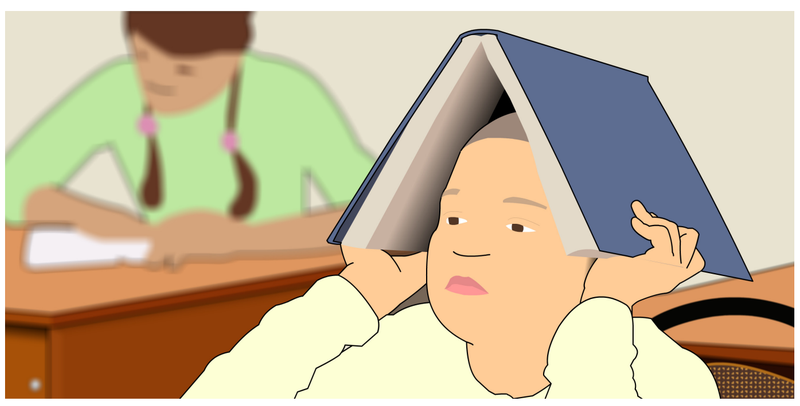
Simplifying Time

for Learning Disabled Children





PROBLEMSPACE



Learning disabled children struggle to keep their focus during class. The main factor in keeping the children focused is not to overwhelm them. It is important they know what they are supposed to be doing and for how long. For this reason structure is essential for the children.

An ordinary special needs classroom is stripped of everything but the essentials, as not to distract the children. The only things allowed on the classroom's walls are smart boards, pictograms visualizing the school day, a traffic light letting the children know when they are allowed to talk, as well as an analog clock.

Structure is of high importance for the children during their school day, and if the structure starts to fade so does the their focus. One of the tools used by teachers are pictograms illustrating the class schedule so the pupils know the schedule for the day. This is helpful for children with e.g. ADHD, since their sense of time is significantly worse than that of a child without a learning disability.

Since children with learning disabilities struggle with time, they have difficulty using an analog clock. This means that the children will either ask the teacher or check their phone to orient themselves of the current time. Both are distracting for the classroom. A motivation for the project is to visualize the flow of the day so a child with learning disabilities can comprehend time better, and be able to put time into the context of what they are doing at a certain point and for how long.

Furthermore we wish to investigate what design sensitivities are relevant to comprehend when designing for a classroom environment for children with learning disabilities. If somebody else is designing a system for the same environment they would then know which values are important to keep in mind when designing for children with learning disabilities.

CONCEPT

EasySchedule is a digital school schedule for special classes. The schedule shows blocks of time sized accordingly to the length of the class. As the day advances the schedule progresses horizontally and thereby shows when the class is done and what happens next.

EasySchedule is designed to keep children with learning disabilities updated on the progression of their school day. By doing this we wish to help the pupils stay focused and motivated throughout the day, as they tend to get stressed and demotivated when they lose their sense of time. The system is a digital school schedule that shows blocks of time sized accordingly to the length of the class. As the day advances the schedule progresses horizontally and thereby shows when the class is finished. This enables the pupils to see how far they have progressed in the current class, and more importantly, when the next break is. This helps the children stay motivated, as the break is a rewarding factor that functions as a motivation for the children.

Furthermore we implemented a feature that allows the teachers to add notes to the image blocks, if they wish to add more information to the class. The teachers can also make use of a timeout function that stops the schedule from progressing until it is resumed. Lastly, the teachers have the ability to show a view of the entire school day to introduce the children to the upcoming day.

Our system is designed to be simple. This is a conscious design choice as it was a key factor to ensure that the system remains unobtrusive. This relates to the colors and animations used. It is also important that the images used to indicate the current lecture, are matching the children's understanding of what that image should present. It can cause misunderstandings for the children if the image used for a Danish lecture reminds them of a library lecture.

CONTRIBUTION

EasySchedule is a tool used for testing design sensibilities, which are important to consider when developing a system for a special class. These sensibilities are perception, flexibility, and unobtrusiveness. They work as a framework for anyone developing a system for a special class.

The main contributions of EasySchedule are guidelines to consider when designing a system or product for a special class environment. The three primary things to consider are perception of colors and pictures, flexibility, and unobtrusiveness.

Perception covers the choice of color, images, and shapes. You should avoid sharp colors because children may have an already established interpretation of these, either if they are already used by other pedagogical methods, or if they are disliked by some pupils. Images need to be easily understandable and communicate the exact purpose.

Flexibility means that a system or product should be able to adapt to changing conditions. In special classes conflicts arise quite often, and thus it should be possible to remove attention from a product or system, or adapt it to represent the new situation. This should be easy adjustable for the teacher or pedagogue.

Finally a system or product should be unobtrusive. Children with learning disabilities are already challenged in staying focused, and therefore it is important to avoid making something that is either obtrusive or distractive. In many situations these three terms will be correlated. If the perception of colors and images of a system is poor, it could likely be obtrusive as well.

By considering these sensibilities, it will be possible for future development in this field, to identify problem spaces in their systems, as well as save valuable time by considering and working these sensibilities into the system early on in their iterative process.