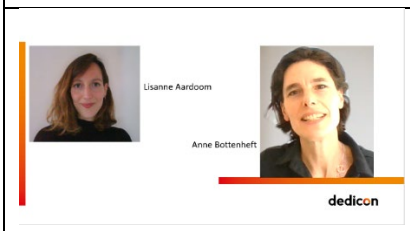
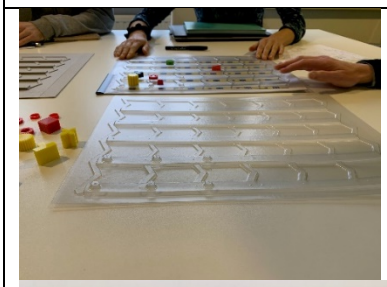
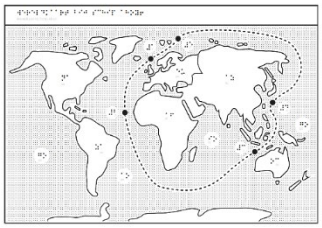
An inclusive educational board game (script)

Tactile Reading Congress 2021 Lisanne Aardoom and Anne Bottenheft.

Powerpoint:	Text:
	Hello, welcome. In this presentation we will show you the development of the inclusive educational board game 'Schip Ahoy!', which is Dutch and literally means: Ship Ahoy! We will talk about the design of the game and the user tests we did with visually impaired and sighted pupils. Initially we would have loved to show you the real physical product, so you would be able to touch and/or see it and even play the game. But due to the unfortunate circumstances we have to present the game online and we will do our best to describe everything as good as possible. We hope we can trigger your imagination to some extent. The present sheet shows the case of the boardgame: the front with five islands surrounded by seawater, but also what's in the case: like manuals in braille and in print and colourful pawns.
	I would like to introduce ourselves first. My name is Lisanne Aardoom and I am working as a productmanager of tactile images and music at Dedicon in the Netherlands. Dedicon is a non-profit organisation which makes existing text and images accessible for people with reading disabilities. Co-presenter is my colleague Anne Bottenheft, a specialist on image description.
	On the present sheet we see a child busy with positioning pawns on the board, during the testing of the prototype. Playing a board game is a fun social activity, often with a lot of educational value. Children acquire new skills such as thinking ahead, planning, working together, keeping overview … and of course losing. People with a visual impairment are often still excluded from this all. Especially because the innovative designs of boardgames are becoming more and more complex and visual. We think that visually impaired pupils should have more opportunities to play board games with their peers! That's why Dedicon decided to develop an inclusive educational board game.

	We wanted to design a boardgame in such a way that users can get a basic set with materials, like a tactile overlay, chips, a dice and pawns. A visual base and corresponding manual can be designed specifically for certain themes. In this project we only had enough grants to design a boardgame for one theme. Ideally you can change base and manual depending on the theme of your interest. The base and corresponding short explanations of the various themes would then be available for downloading and printing.
  	The present sheet shows various prototypes of the board and the overlay, made of different materials like paper, cardboard, thermoform and some 3D printed objects. During the design phase we were confronted with several challenges. I will discuss the main ones: - The first one is the integration of an educational element, while finding a good balance between a fun to play boardgame and an educational board game. - Apart from that, the game should be easy to grasp and fun to play, even after innumerable times of playing. - Also: The visual base should be evident but also intriguing to see for both visually impaired as well as sighted pupils. - Besides, the tactile overlay should be designed in such a way that it can be used for other game themes as well. However, blind users should be able to find 'special' squares easily by themselves. Being able to mark squares flexibly is a requirement for making the game inclusive. - The next challenge concerned the pawns. Pawns should remain in a square on the board: users must be able to feel which square they are in and they should not easily knock them over when reaching for them. - Finally, the sequence of making steps with your pawn should be logically structured for blind users. We found in a preliminary test that the spiral sequence - used for example in the Game of the Goose - doesn't work well for blind children. So, these challenges made it even more fun to design the materials, our team got creative! Through rapid prototyping we came up with the final design. Anne will tell you a bit more about this.



First I would like to give you an impression of how the game works, whereafter I would like to describe the physical materials of the game.

Once again we see the sheet upon which a child is positioning pawns on the testboard.

The game “Schip Ahoy!” can be played from the age of 8 years old. The game is designed for two to five players, is about being first and about collecting treasures on the islands Foula, Boa Vista, Christmas Island, Hokkaido and Kvitoya. On these islands you also have to carry out special assignments. For example: ‘You decided to cuddle with the Shetland ponies despite the bad weather. Skip one turn’. The game is enriched with extra’s to remain attractive even after playing a dozen times.

- The first extra is a travel story. With the travel story you will learn more about the five islands, like fun facts about the crabs on Christmas Island or about the freezing cold climate and walruses on Kvitoya Island. All this to invite and inspire the players. Like one girl who participated in the usertests. She started telling a funny joke about a polar bear!
- The second extra is a large A3 tactile map of the world, now present at the sheet. On this map the islands and the sailing route are indicated. The map is also provided in large print.

On the present sheet we can see the game board, which consists of a visual base that shows five islands surrounded by seawater and a transparent tactile overlay. The tactile overlay goes on top of the visual base and both are attached to each other with two slide binders on the short side. Next to the game board, we can see some chips and a tactile dice on the table.

The board consists of 5 rows and each row has 6 squares. In front of and behind each row the number of the row is indicated by horizontal dashes. So 1 dash is row 1 and so on. Each square has a number from 1 to 6, styled like the side of a dice and also made tactile. The player whose turn it is places the board on the table in front of him. When it's the next player's turn, he has to slide the board carefully to the other player on the table. Thus, nobody has to play 'upside down'.

Squares on the tactile overlay that are 'special' and contain an assignment can be marked flexibly with small rings, as we can see on one the current sheets. This allows blind children to find their way swiftly and offers variation to sighted and partially sighted players when the visual base would be replaced.

As already mentioned, the base shows five islands surrounded by seawater in different shades of blue. Featuring a sandy beach-islet, a tropical isle with a crab, a green isle with Shetland-pony's on it and an arctic isle, home base of a polar bear.

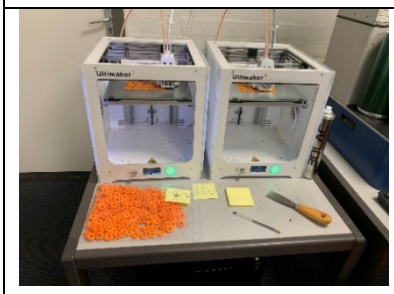
One of the images in the sheet shows the 3D printed pawns in various colours and naturally with distinct shapes so players can easily tell them apart.

Of course a thought-out manual comes with all these, provided in braille and large print. So everyone can become gamemaster; in that case it's your job to read out loud the extra's like parts of the travel story or a special assignment on an island. 'A lot of excitement and fuss is going on at the isle of Hokkaido. Sail along or linger on; throw the dice to make up your mind'.

In the development phase, before we got to the final design, we made a prototype so we could test the game. First we took the chance to play the game ourselves! This was fun and also instructive, we came across interesting things that could be improved. After this, we tested the game at two primary schools; one regular school and one focusing on visually impaired pupils.

The current sheet shows two pupils in action while testing. The age of the participants ranged from 9 to 11; 2 blind children, 3 visually impaired and 2 sighted. At both schools also a tutor was participating.

	The children couldn't wait playing the game. We observed and took notes, pretending not to be there while they played the game. When they finished and there was a winner, we asked the pupils and their tutors questions. The children thought the game was fun and still interesting, even after playing it two times. After the game, they discussed what had happened. They said things like: I stole two treasures on that spot! Another child: shall we play one more time? A sighted girl, said that she liked the game because blind people can see a bit better now. Some of them said that it was the best day of school so far. And a visually impaired boy said that this game is good for his eyes, and that other games are much less clear.
  	Both participating schools reacted positively and we also came across several aspects that could be improved. We integrated them into the final design. I will now discuss the most important findings of the user tests: • The tactile overlay was clear for the blind pupils to identify islands and move from square to square, although with a little bit of guidance in the beginning. This ensured that they could navigate without difficulty, making them feel included in the game. • This also applies to the other physical materials, like the pawns, dice, chips and 'special' squares marked with small rings. The children were able to distinguish and identify them, although with a bit of help in the beginning. • Some elements of the visual base needed higher contrast. However, according to the pupils and tutors, shapes and colours shouldn't be too simple, otherwise it would no longer be interesting for the sighted students. A nice balance is crucial. • In the prototype the tactile world map was discussed in the manual before the explanation of the game. Also the travel story was integrated in the explanation of the game. This made the children impatient, they wanted to start playing immediately. The tutor advised us to first explain the game itself in the manual, and then add the travel story and the world map as an extension. So they can use these extra's after they have played it several times. The children did find the extra information interesting though. For example a visually impaired boy placed the world map in front of him and was inspecting the map carefully by himself.

	• One remark was that the tactile map of the world was still a bit too difficult for children at this age. That's why we've added these as an extra so that they don't get too much information at the beginning and maintain patient to understand the game priorly. According to the tutors, for children who are slightly older, the map will be easier to understand.
  	We recently put everything into production. The present sheet shows a photo of the appealing case with accessories and also photos of the preceding process. Like two 3D printers in action; the moving printhead of the Ultimaker is stacking the layers which together construct an orange coloured chip. From the 15th of December 2020 people were able to order the game Schip Ahoy! in our webshop!
Thank you for your attention! lisanneaardoom@dedicon.nl dedicon	We hope we gave you a comprehensive, but concise presentation about the inclusive educational board game we designed. We are very curious to hear from you: all ideas, feedback and remarks are more than welcome. We are also interested in your own experience with inclusive games. Last but not least: we'd welcome all your ideas about exploring possibilities to develop and / or exchange content together! My details are on the congress website and on this slide: lisanneaardoom@dedicon.nl Thank you for your attention and I am looking forward to hear from you. This project was made possible in part by grants from Het Oogfonds, Het Gehandicapte Kind en het Kinderfonds Van Dusseldorp.