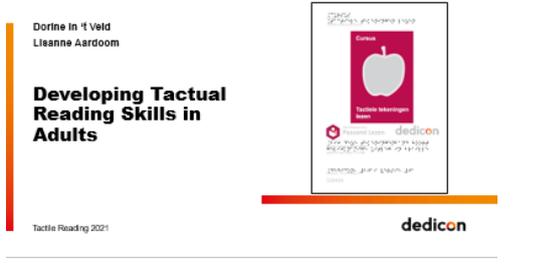
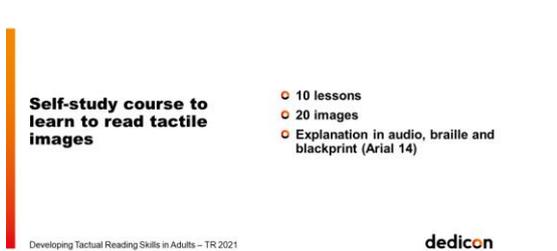
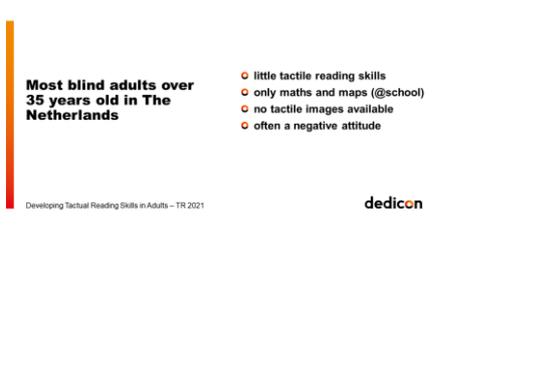
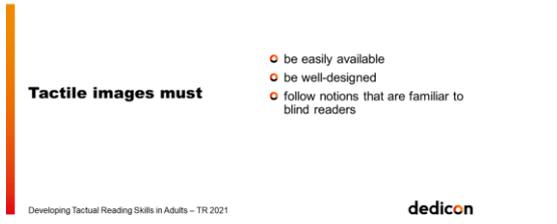
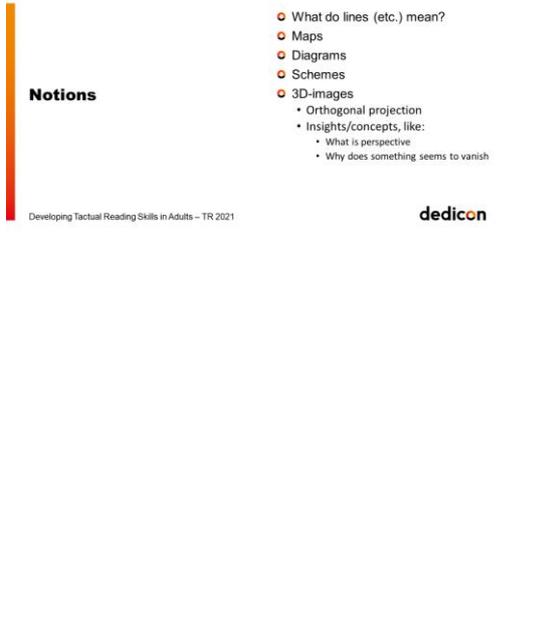


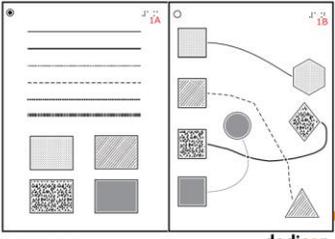
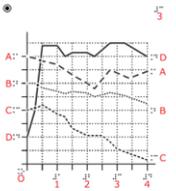
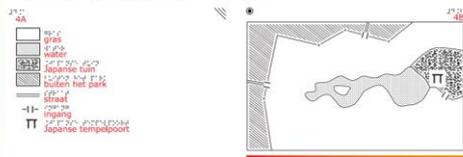
Developing tactile reading skills in adults (script).

Tactile Reading Congress 2021 Dorine in 't Veld and Lisanne Aardoom.

Powerpoint:	Text:
	<p>Welcome to our presentation: Developing tactile reading skills in adults.</p> <p>In 2019 we developed a self-study training to learn to read tactile images people can do at home. The cover of the tactile volume is shown on the slide.</p>
	<p>It consists of 10 lessons, each with 2 images and the explanation is available in audio, braille or printed in large print.</p> <p>In this presentation we will give you a good impression of the content of the course and the ideas behind it.</p>
	<p>We are Lisanne Aardoom and Dorine in 't Veld, productmanagers for tactile images at Dedicon; Dorine for education and I for leisure. Dedicon is the organisation in The Netherlands that produces adapted and accessible reading and learning materials – one of them: tactile images - in different techniques.</p> <p>There is much to tell about this subject but time is limited, so we will just focus on the course. As you can read on the next slide:</p>
	<p>Most blind adults over 35 in the Netherlands never properly learnt to read tactile images. Mostly they only used some tactile images in school for maps or mathematics – and after that, they never used them again... since there were none!</p> <p>Besides many adults had a negative attitude towards tactile images, generally due to bad experiences at school, either because of the negative attitude of their teachers, or because the images in the past were not well designed.</p>
	<p>The next slide summarizes: Description – when using only words - leaves (very) much to guess.</p> <p>We all know these games, where a group sits in a line and where the first person whispers</p>

<p>Description leaves (very) much to guess.</p> <p>Developing Tactile Reading Skills in Adults – TR 2021</p> <p>dedicon</p>	<p>something in the ear of the person next to him or her. (This was before Corona...). The last person must replicate what the first said. The outcome mostly is very different and sometimes hilarious!</p> <p>Anyway: blind people for a long time were – and often still are – implicitly supposed to understand scientific, cultural and art subjects through description only. But words alone rarely manage to give a proper understanding, especially when the subject that is described is unknown or new to the reader or listener.</p> <p>This is why we were happy to be able to realise a course. Dorine developed it and now will tell you what inspired her and how the course is built up.</p>
<p>Gerhard Jaworek in “Blind zu den Sternen”</p> <p>Developing Tactile Reading Skills in Adults – TR 2021</p> <p>dedicon</p> <ul style="list-style-type: none"> ○ I was over 30 years old when I bought a toy model of the Apollo rocket in a toy shop... For the first time in my life I understood how the space ship could connect to the space station. But still I had not the faintest idea what this space station looked like. 	<p>First I’ll say a few words about what and who inspired me.</p> <p>Gerhard Jaworek, a blind amateur astronomer, describes in his book “Blind zu den Sternen” (“Blind to the stars”) the impact of not understanding properly how something works, how it is put together or what it looks like.</p> <p>The slide shows the following quote: I was over 30 years old when I bought a toy model of the Apollo rocket in a toy shop... For the first time in my life I understood how the space ship could connect to the space station. But still I had not the faintest idea what this space station looked like.</p> <p>This is usually not described in detail; people can see the pictures. And even if it is described, it is not easy to build a correct mental representation! For Gerhard it was very frustrating to never really ‘get the picture’ and fully understand! Next slide</p>
<p>Hoëlle Corvest Cité des Sciences, Paris</p> <p>Developing Tactile Reading Skills in Adults – TR 2021</p> <p>dedicon</p> <ul style="list-style-type: none"> ○ Words, only words... ○ It is such a joy to really and profoundly understand a subject. Or to understand the position and proportions of an object and its parts in space. ○ Models are not indispensable; tactile images are. 	<p>Hoëlle Corvest, who worked for more than 30 years in the Museum of Science and Industry in Paris and a very proficient reader of tactile images, thinks tactile images indispensable for proper understanding a description. The slide shows some of her quotes:</p> <ul style="list-style-type: none"> ● Words, only words... ● It is such a joy to really and profoundly understand a subject. Or to understand the position and proportions of an object and its parts in space. ● Models are not indispensable; tactile images are.

	<p>According to her, once you get a good tactile image with an interesting and vivid explanation, you mostly no longer need models. Of course there are situations where a model has great added value, but a well designed tactile image mostly will do.</p>
 <p>Tactile images must</p> <ul style="list-style-type: none"> be easily available be well-designed follow notions that are familiar to blind readers <p>dedicon</p> <p>Developing Tactual Reading Skills in Adults – TR 2021</p>	<p>I learnt a lot from both experts I mentioned.</p> <p>Both stress: - I read the slide -: Tactile images must</p> <ul style="list-style-type: none"> Be easily available Be well-designed Follow notions that are familiar to blind readers
 <p>Understanding tactile images</p> <ul style="list-style-type: none"> Well-designed: easy to discriminate and identify Lines, textures, dots and shapes must gain meaning to blind readers Underlying notions → Education of both readers and designers <p>dedicon</p> <p>Developing Tactual Reading Skills in Adults – TR 2021</p>	<p>The last two bullets of the previous slide talk about ‘well-designed’ and ‘notions’. Put in other words: in order to understand tactile images, it must be easy to discriminate and identify the different lines, textures, dots and shapes in the tactile image.</p> <p>In order to understand the tactile image, those lines, textures, dots and shapes must gain meaning. And in order to gain meaning, the design must respond to underlying notions, that are familiar to blind readers.</p> <p>So readers – and designers! – must be educated about those notions.</p> <p>Next slide</p>
 <p>Notions</p> <ul style="list-style-type: none"> What do lines (etc.) mean? Maps Diagrams Schemes 3D-images <ul style="list-style-type: none"> Orthogonal projection Insights/concepts, like: <ul style="list-style-type: none"> What is perspective Why does something seem to vanish <p>dedicon</p> <p>Developing Tactual Reading Skills in Adults – TR 2021</p>	<p>What are ‘notions’, I hear you ask. Well: notions are principles, concepts, insights, whatever you want to call them, that give meaning to the lines – etcetera – in the drawing.</p> <p>In order to understand 3D images the blind learner, amongst other things, must know the principles of orthogonal projection. When I mentioned this to a psychologist, she didn’t understand. Psychologists have quite a different definition, say notion, of projection! Here we mean: we project an object – like in a photo - under straight angles from above, from the side and/or from the front.</p> <p>You will see this in a minute, while we take you through the course in 7 miles boots. Lisanne presents part 1, I will present part 2.</p>

<p>Lesson 1</p> <p>Tactile discrimination of lines, shapes and textures</p> <p>A: learning B: practicing</p>  <p>Developing Tactile Reading Skills in Adults – TR 2021</p> <p>dedicon</p>	<p>As you might expect after the ideas behind the course, lesson 1 is about tactile discrimination of lines, shapes, textures and dots.</p> <p>The slide shows the two images:</p> <ul style="list-style-type: none"> - on the first page we find different lines and rectangles with different textures. <p>On the second is an exercise.</p> <p>The reader starts at 4 squares on the left of the page, one below the other. From each rectangle a line departs. The reader must follow that line. Some lines intersect. At the end of the lines there are different shapes. The reader can check if he performed well by checking if the shape has the same texture as the rectangle where he started. In the explanation the shape is mentioned as an extra check; if you reached the triangle you're good.</p> <p>This is more difficult than you would think! But almost everyone succeeds and success is a very good stimulus.</p>												
<p>Lesson 2</p> <p>"This is great, my sighted daughter is just learning to write, now I can support her!"</p> <table border="1" data-bbox="399 996 694 1187"> <tr> <td>2A</td> <td>2B</td> </tr> <tr> <td>a A b B c C d</td> <td>R s S t T u U</td> </tr> <tr> <td>D e E f F g G</td> <td>v V w W x X y</td> </tr> <tr> <td>h H i I j J k</td> <td>Y z Z 1 2 3 4</td> </tr> <tr> <td>K l L m M n N</td> <td>5 6 7 8 9 0 :</td> </tr> <tr> <td>o O p P q Q r</td> <td>! ? @ - = + /</td> </tr> </table> <p>Developing Tactile Reading Skills in Adults – TR 2021</p> <p>dedicon</p>	2A	2B	a A b B c C d	R s S t T u U	D e E f F g G	v V w W x X y	h H i I j J k	Y z Z 1 2 3 4	K l L m M n N	5 6 7 8 9 0 :	o O p P q Q r	! ? @ - = + /	<p>The next slide shows lesson 2: which is about letters, digits and symbols. A reaction of a young blind woman was: "This is great, my sighted daughter is just learning to write, now I can support her!"</p>
2A	2B												
a A b B c C d	R s S t T u U												
D e E f F g G	v V w W x X y												
h H i I j J k	Y z Z 1 2 3 4												
K l L m M n N	5 6 7 8 9 0 :												
o O p P q Q r	! ? @ - = + /												
<p>Lesson 3</p>  <p>Developing Tactile Reading Skills in Adults – TR 2021</p> <p>dedicon</p>	<p>Lesson 3: the slide shows quite a complex diagram. At the same time it explains the concept of this type of diagram and offers good opportunity to practice discrimination skills. Fun exercises and stories guide the reader.</p>												
<p>Lesson 4: map, part 1: outlines</p>  <p>Developing Tactile Reading Skills in Adults – TR 2021</p> <p>dedicon</p>	<p>Lesson 4: a map, part 1. Part one shows the rough outlines of a park with a lake and the area with surrounding buildings. The legend is explained in braille and large red letters.</p> <p>You may have noticed them before: they don't swell; this way the course is usable for both braille readers and partially sighted readers who don't read braille, but can use large print. Next slide</p>												

Lesson 5: map, in two steps, step 2: details

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Lesson 5: a map, part 2. Now the details are shown: a phantasy audio tour with points of interest. We got positive reactions, such as: ‘Dedicon, you should always do this!’ Offering a map in two steps and adding explanations makes it much easier to read a map!

Dorine will take over now.

Lesson 6

3D subjects
Orthogonal projection
Projection versus section

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The second part of the course, the next 5 lessons, introduce the notion of orthogonal projection to the reader.

This part of the course starts with a basic principle: a projection as opposed to a cross-section. The slide shows an apple and a pepper as shown from a side (any side, the stalk is up).

How can you tell a projection from a section?
Both show the silhouette, or the circumference. You can find this by cutting the object in two halves at its widest point. Or by pushing it through a hole in the page that has exactly that shape. But beware: the hole is only an aid to discover that outline! A projection is a flat depiction, like a photo or a movie.

We explain in the text, that the projection will have shadow, and color: things we cannot show in a tactile image. Note: the explanation of tactile images very often describes important visual information that is left out in the tactile image for the sake of readability.

The section is **also** a projection; but this time it shows what is on the inside: the seeds and how they are embedded.

Lesson 7

A. Orthogonal projection
Top-, front- and side views are ‘relative’.

They depend on the position of the object in space.

B: exercise: what is the front view when 1 is on top?

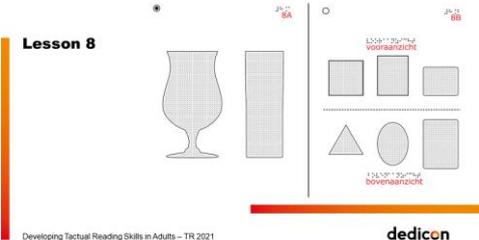
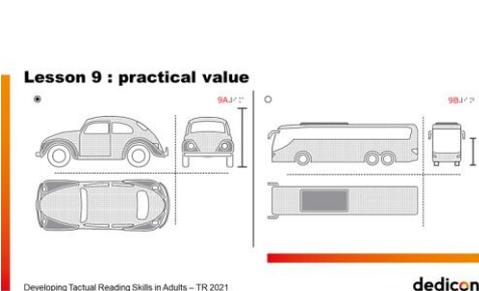
Developing Tactual Reading Skills in Adults – TR 2021

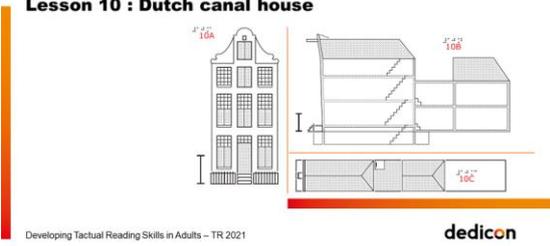
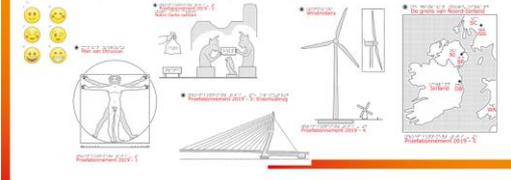
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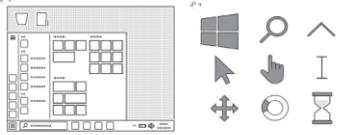
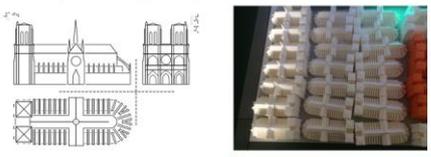
These important notions: what is orthogonal projection, what is a side view, what is a front view and what is a top view, are further illustrated by a die. The slide shows an image with 4 quadrants, separated by dotted lines.

Upper left we call front view, lower left top view. In the quadrant to the right of the front view the side view is shown.

The reader now can build a mental representation. The 5 is directed towards the reader, the 6 is on top and the 4 is on the side.

	<p>Actually in this quadrant the side view from the left is depicted.</p> <p>This method has two big advantages:</p> <ol style="list-style-type: none"> 1) It follows international standards (i.e. in Europe). 2) It respects very much the way hands would explore an object or a model; there is no distortion of angles or shapes or lengths of lines. <p>By the way: we also give a plan of an unfolded die to help participants solve the exercise to figure out what is the front view when 1 is on top. Try this! Next slide.</p>
 <p>Lesson 8</p> <p>Developing Tactile Reading Skills in Adults – TR 2021</p> <p>dedicon</p>	<p>Of course it requires understanding how the method works AND it requires practice. Besides it takes practice to get projections in the fingers; they are not always easy to understand. Lesson 8 shows the side view of two glasses. The beer glass on the left is relatively easy to recognize. The rectangle on the right however, is harder to grasp. Here a rectangle is the circumference of a cylinder. Of course you can only know when you know the top view. The next exercise is to combine front- and top views. For example: when the top view is a triangle and the front view is a square..., and the sides of the triangle and rectangle correspond..., then what is the object? It is a triangular block with square sides. It takes a little practice, but once the method is understood it can open new worlds to blind readers. Next slide.</p>
 <p>Lesson 9 : practical value</p> <p>Developing Tactile Reading Skills in Adults – TR 2021</p> <p>dedicon</p>	<p>Of course we will only make a tactile image of an apple or a pepper or a glass to explain tactile images; everybody knows them and can easily obtain them. They help understanding projections (- and sections).</p> <p>Lessons 9 and 10 show the practical value. The method allows to describe objects that are too big (or too small or dangerous or too abstract or too whatever) to touch. With a description it is possible to build an exact mental representation of specific types of cars or busses, as shown in this slide.</p> <p>Indeed: when you are well trained and with an interesting and vivid description, you do not really need a model!</p>

	<p>The description only needs to add the 'look and feel' and other interesting features and things you want to know. Next slide.</p>
<p>Lesson 10 : Dutch canal house</p>  <p>Developing Tactual Reading Skills in Adults – TR 2021</p> <p>dedicon</p>	<p>Lesson 10 even takes the reader through a Dutch canal house. The slide shows the front view with a line beside it. That line is the length of an average adult person.</p> <p>The side- and top view had to be depicted smaller, because behind the narrow façade a very deep (long) house is hidden, consisting of different parts that in the course of time were attached to each other or expanded.</p> <p>The line indicating the length of a person next to the side view is shorter than the one next to the front view.</p> <p>Lisanne will now tell you a few last things about how the course was received and about our related work.</p>
<p>Reactions</p> <ul style="list-style-type: none"> ○ From: still hesitating <ul style="list-style-type: none"> • it is timeconsuming • it requires a learning curve ○ To: Brilliant! <ul style="list-style-type: none"> • I wish I had known this before! • I should have learnt this at school! • I want more!  <p>Developing Tactual Reading Skills in Adults – TR 2021</p>	<p>This presentation focusses on the why and how and on the content of the course; we are not going into details and numbers. But of course you are curious to reactions of participants and testers we consulted during the development. On this slide we summarized: reactions range from still hesitant (like: yes, I can see the value, but it is time consuming and it requires a learning curve), to Brilliant, I wish I had known this before, I should have learnt this at school, I want more!</p> <p>So, even when hesitant, all participants and testers could see the value of tactile images.</p>
<p>Further practicing and profiting 1</p>  <p>Developing Tactual Reading Skills in Adults – TR 2021</p> <p>dedicon</p>	<p>And we have more. For further practicing and profiting from the newly learnt skills we have a plan where readers can subscribe and receive a tactile image with explanation every two months.</p> <p>We chose iconic subjects, or subjects with a high topical value. So far we have published:</p> <ul style="list-style-type: none"> ● Emoticons ● A cartoon ● The Vitruvian man by Da Vinci ● The Erasmus Bridge in Rotterdam ● The border of Northern Ireland (in relation to the – at the time - upcoming Brexit) ● Modern and traditional windmills <p>I hope visually impaired attendants forgive us that we do mention but not describe the subjects.</p>

<p>Further practicing and profiting 2</p> <p>Same applies as for the Emoticons: (almost) everyone thinks it is interesting and finds it easy to read.</p>  <p>Broodje Info: Cursus tactiele tekeningen Lezen</p> <p>dedicon</p>	<p>We also made thematic tactile volumes with explanation. We now have one explaining what is to be seen on the screen of your computer or mobile phone, where items appear and how they behave. This allows much better communication with sighted computer users (which is important if one works or studies in a 'sighted environment').</p>
<p>Further practicing and profiting 3</p>  <p>Broodje Info: Cursus tactiele tekeningen Lezen</p> <p>dedicon</p>	<p>We had just decided to choose for the Notre Dame as an iconic building, when fate struck. We're not quite sure if it is because of the fire and all the attention that went to it, or the subject itself, but it was a very popular title! Here we added a (small) 3D print, that corresponds exactly to the image with the top-, side- and front-view of the Notre Dame as shown on the slide.</p>
<p>Further practicing and profiting 4</p>  <p>Developing Tactual Reading Skills in Adults – TR 2021</p> <p>dedicon</p>	<p>We also have a volume on birds; here we added their songs. And we added colours for partially sighted readers. This too is a very popular volume. The slide shows the chaffinch. The line on the side indicates 10 cms.</p>
<p>Inclusion</p> <ul style="list-style-type: none"> ○ Convention on the Rights of Persons with Disabilities of the United Nations <p>Developing Tactual Reading Skills in Adults – TR 2021</p> <p>dedicon</p>	<p>We have new projects coming. We hope that the tendency towards more inclusion and accessibility, that is very much stimulated by the Convention on the Rights of Persons with Disabilities of the United Nations, will continue.</p>
<p>Thank you!</p> <ul style="list-style-type: none"> ○ dorineintveld@dedicon.nl ○ lisanneardoom@dedicon.nl <p>Developing Tactual Reading Skills in Adults – TR 2021</p> <p>dedicon</p>	<p>We thank you for watching this video and please feel free to contact us if you have any questions!</p> <p>Our details are on the congress website and on this slide: dorineintveld@dedicon.nl and lisanneardoom@dedicon.nl</p> <p>Thank you very much and looking forward hearing from you.</p>