



## Manual

# dob Visual Perception Training

Early intervention and special education

**Promotion of basic visual and visuomotor skills**

Basic version for students

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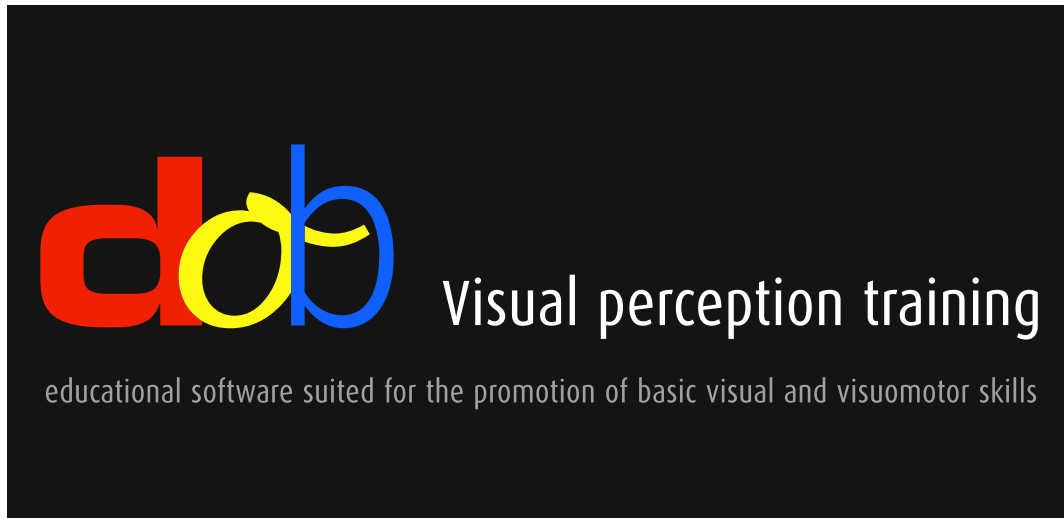
### 9. Team

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## 1. General



dob is an educational software suited for the promotion of basic visual and visuomotor skills. It is especially designed for the needs of visually impaired persons. The high extent of individualisation further allows its use in various fields of the curative as well as the special education, in rehabilitation, and as an assisting and observatory instrument in early education.

dob offers a broad range of exercises, covering easy stimulations, generally basic tasks as well as the training of cognitive skills.

### **Photosensitive Warning**

A very small percentage of individuals may experience epileptic seizures when exposed to certain light patterns or flashing lights. Exposure to certain patterns or backgrounds on a computer screen may induce an epileptic seizure in these individuals. Certain conditions may induce previously undetected epileptic symptoms even in persons who have no history of prior seizures or epilepsy.

### **i.1. Concept and Structure**

dob pro offers more than 2500 exercises for the training of the most important visual skills allocated into six modules. They can be used as required in a wide variety of situations. These exercises are also available to dob users via the export/import function.

The integrated tools enable individual support planning:

- Arrange exercises in a lesson
- Save and organize frequently used exercises to favorites
- Develop your own, individually adapted exercises with the integrated editor
- Exchange exercises with other professionals, using the export/import function

In general, those learning with dob should be accompanied by a professional who can explain the exercises and give support where needed.

## 2. Using dob

### 2.1. Requirements

#### 2.1.1. General

Through the use of different entry options (touchscreen, switching device, mouse or keypad) the program takes into account the special conditions of multiply retarded people. In most of dob's exercises, the user's options are limited to a number of two: *confirm* and *continue*, commanded by the

keys/gestures SPACE  and ENTER . Those two commands can also be defined on a switching device, allowing a most individual approach within each exercise.

→ [Keyboard shortcuts and touchscreen gestures](#)

In general, those learning with dob should be accompanied by a professional who can explain the exercises and give support where needed.

### 2.1.2. dob online

dob online can be used on desktop-computers as well as on laptops and tablets.

Desktop computers and laptops: Control by mouse, computer keyboard and switching devices. Connected with a Touchscreen, dob can be controlled by gestures additionally.

Tablets: Control by [gestures](#).  
External bluetooth keyboards are supported.

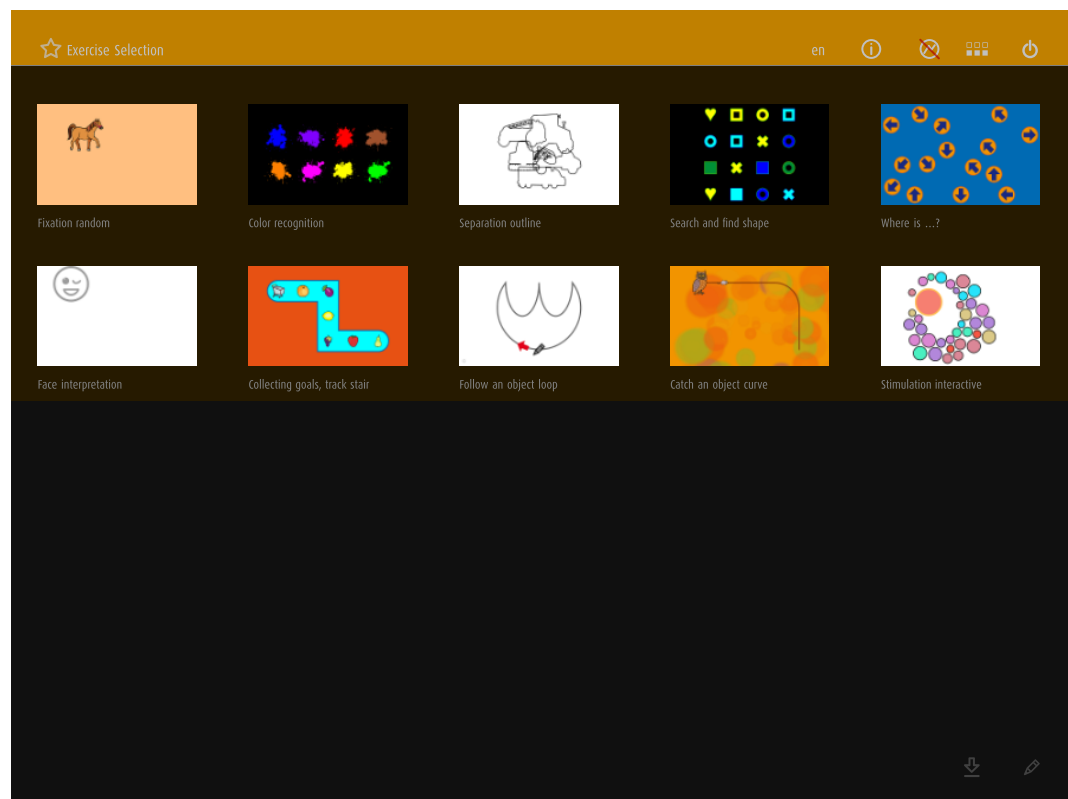
### 2.1.3. dob iOS App

dob App works on iOS tablets.

Control with gestures. Connected with an external bluetooth-keyboard, the App supports all dob [shortcut keys](#).

## 3. Home screen

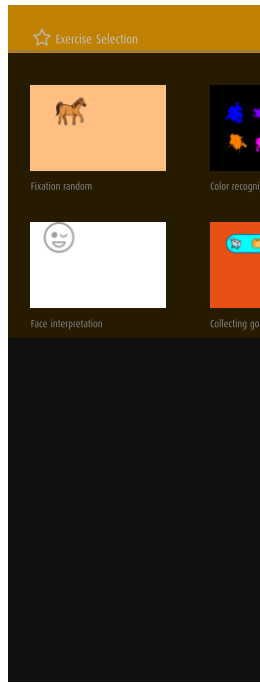
dob is the basic version of dob pro for students. The training contains a set of 10 fixed exercises, covering the most important visual skills. Additionally, an import area is available, providing the import of specifically selected exercises from dob pro – the full version for therapists and teachers.



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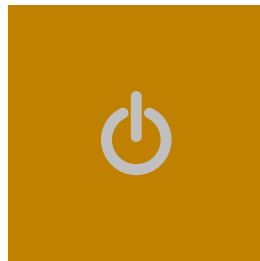
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### 3.1. Navigation

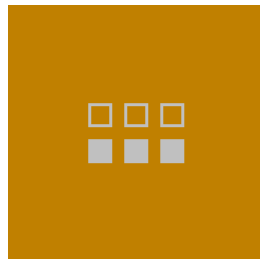


Fixed exercises of the basic version

Import area



Close program



Show all | import only



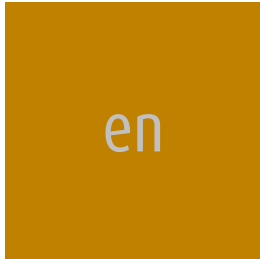
Evaluation settings

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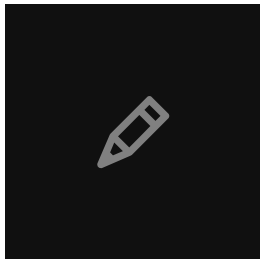




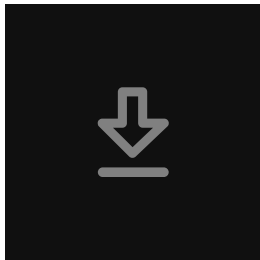
Reveal shortcut keys



Select language



Customize import area



Import exercises from dob pro



Import exercises from dob pro  
Click to start the exercise

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### 3.2. Program control

On a tablet, the program is controlled by gestures. Using a computer or laptop, program functions are controlled by shortcut keys and/or gestures, if a touchscreen is connected.

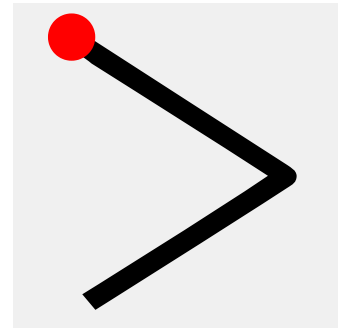
→ [Keyboard shortcuts and touchscreen gestures](#)

Effect	Shortcut key	Gesture
Start exercise	Click the exercise	Tap the exercise



Start task  
Confirm task

space



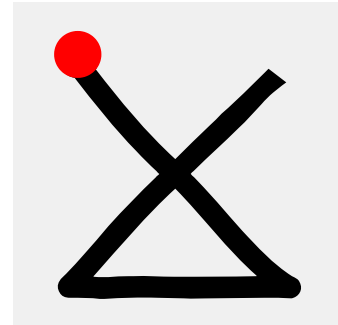
exercise

Click the object

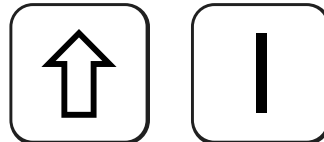
Tap the object

Quit exercise

enter



List of shortcut keys and  
gestures



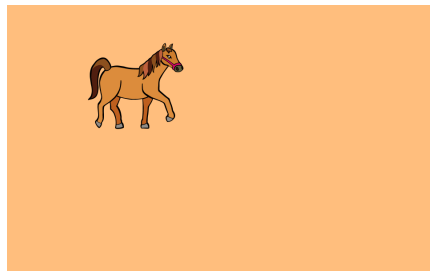
Within exercises, commands are available to adapt the visual environment in order to individualize to your personal needs. They will be explained in the next chapter.

→ [Keyboard shortcuts and touchscreen gestures](#)

### 3.3. The 10 exercises of the basic version

The main task is to either find requested objects and colors, to click/tap them or to move objects with your finger/mouse across the screen.

#### Fixation random



*Skill*

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Motility | Fixation



Shifting Attention



Shape Recognition | Figure

*Taks*

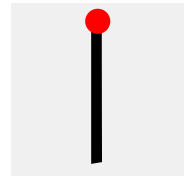
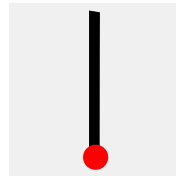
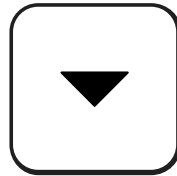
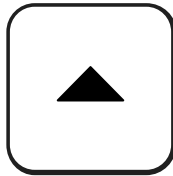
12

*Difficulty*

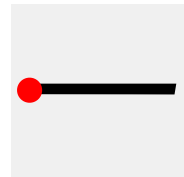
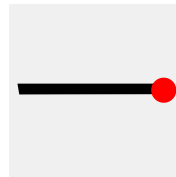
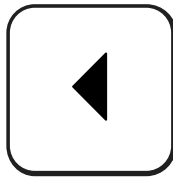
Constant

*Individualization*

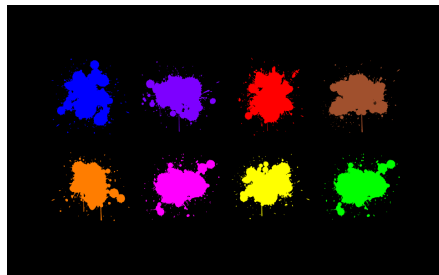
Change size



Change opacity



**Color recognition**



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Skill



Color Recognition | Color



Visual Memory | Short-term Memory

Taks

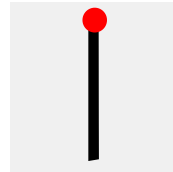
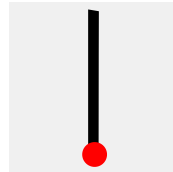
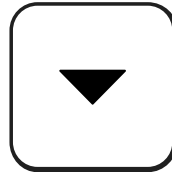
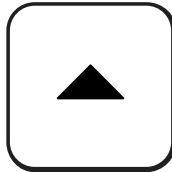
8

Difficulty

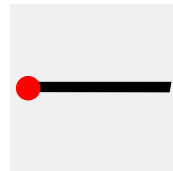
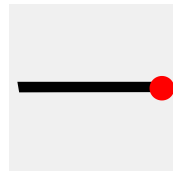
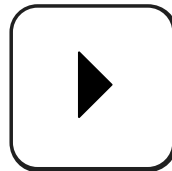
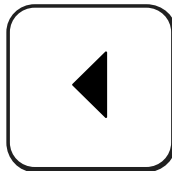
Increasing

Individualization

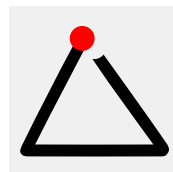
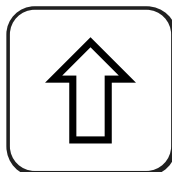
Change size



Change opacity

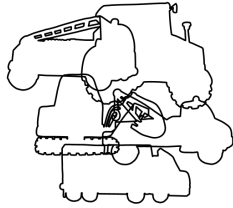


Display the requested color

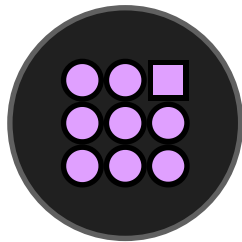


Separation outline

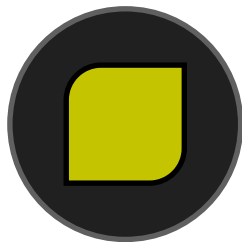




*Skill*



Ability to Separate | Figure-Ground Perception



Shape Recognition | Figure

*Taks*

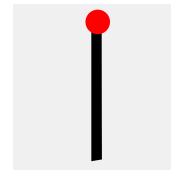
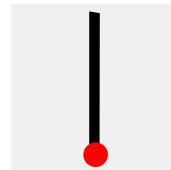
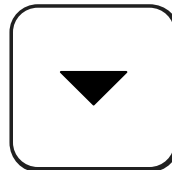
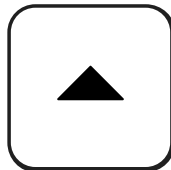
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*Difficulty*

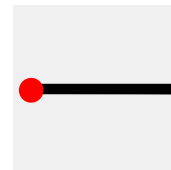
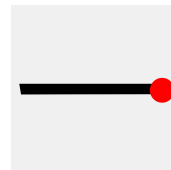
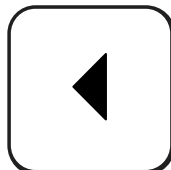
Constant

*Individualization*

Change size



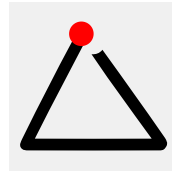
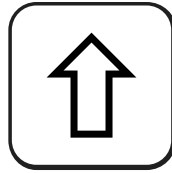
Change opacity



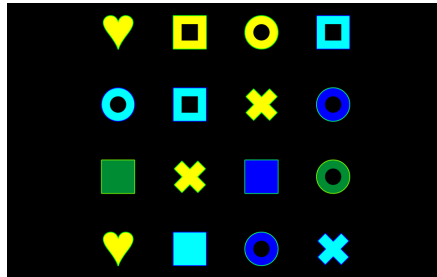
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Display the requested object



### Search and find: Shape



*Skill*



**Search Strategies**



Shape Recognition | Figure



Visual Memory | Short-term Memory

*Taks*

10

*Difficulty*

Increasing

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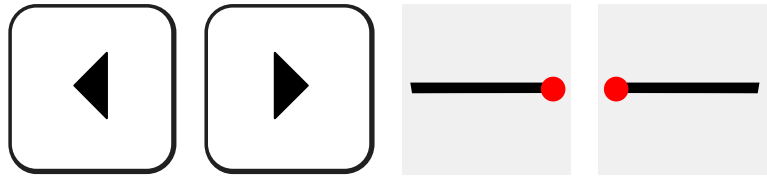
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## Individualization

Change size



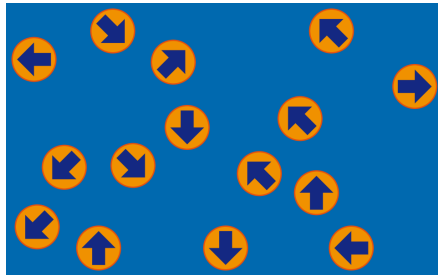
Change opacity



Display the requested object



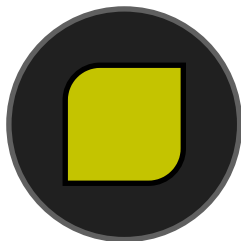
## Where is ...?



## Skill



Search Strategies



Shape Recognition | Figure

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Visual Memory | Short-term Memory

*Tasks*

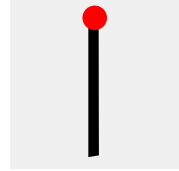
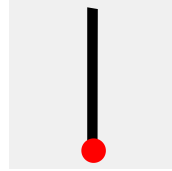
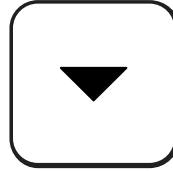
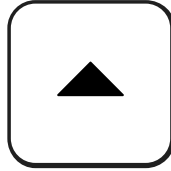
6

*Difficulty*

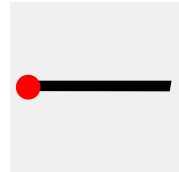
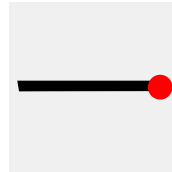
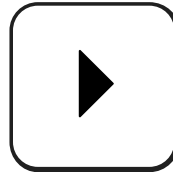
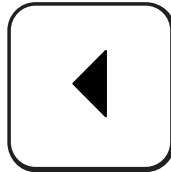
Increasing

*Individualization*

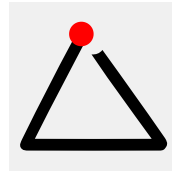
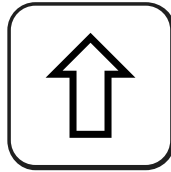
Change size



Change opacity



Display the requested object



**Face interpretation**



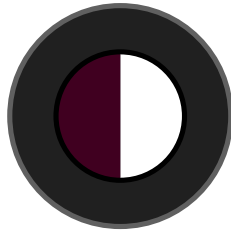
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*Skill*



Face Perception | Interpretation



Contrast Sensitivity



Sustaining Attention

*Taks*

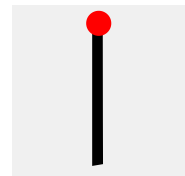
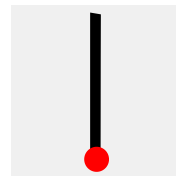
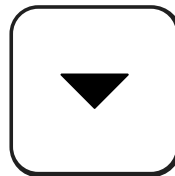
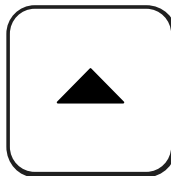
10

*Difficulty*

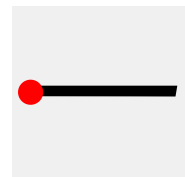
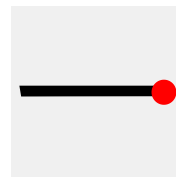
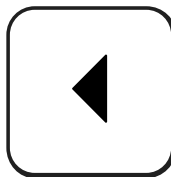
Constant

*Individualization*

Zoom fast/slow  
End of task: Change size



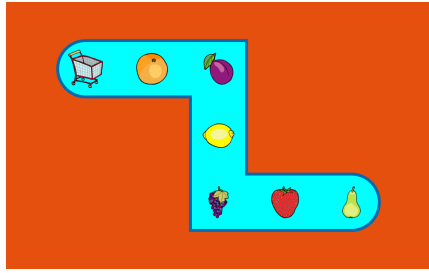
End of task: Change opacity



Collecting goals: Trail stair

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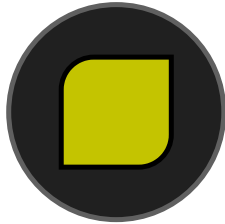




*Skill*



**Hand and Eye Coordination**



Shape Recognition | Figure

*Taks*

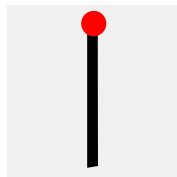
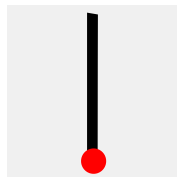
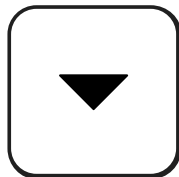
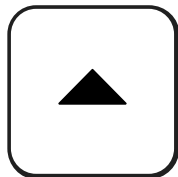
6

*Difficulty*

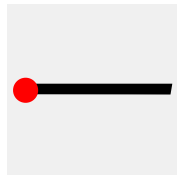
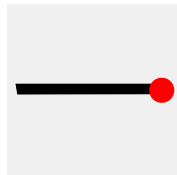
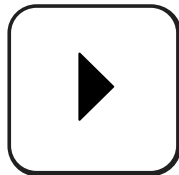
Increasing

*Individualization*

Change track width



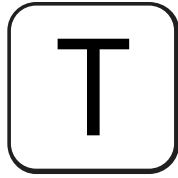
Change track opacity



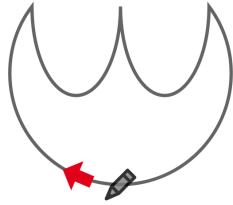
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Change type line



**Follow an object: Loop**



*Skill*



**Hand and Eye Coordination**



**Sustaining Attention**

*Taks*

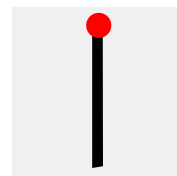
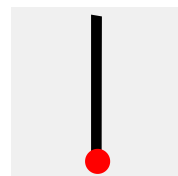
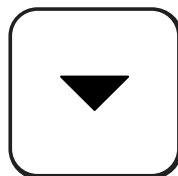
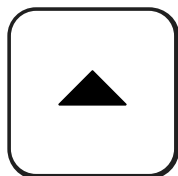
8

*Difficulty*

Increasing

*Individualization*

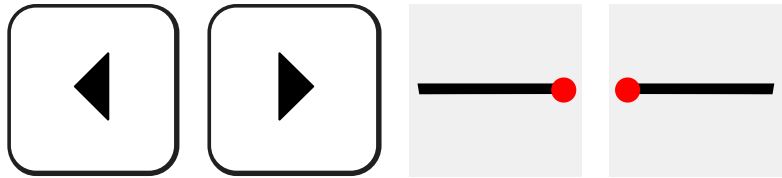
Change line width



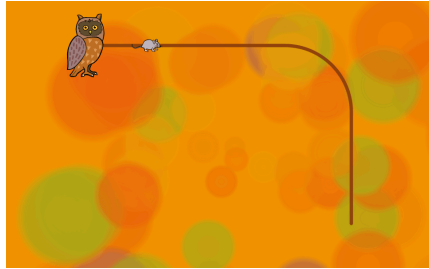
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Change line opacity



### Catch an object: Curve



### Skill



Hand and Eye Coordination



Sustaining Attention

### Taks

10

### Difficulty

Increasing

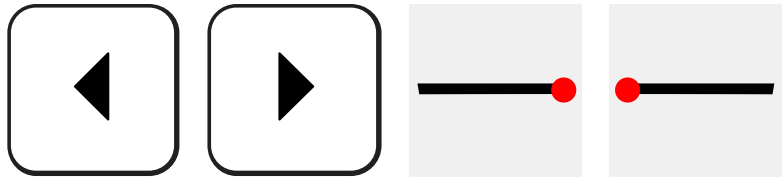
### Individualization

Change line width

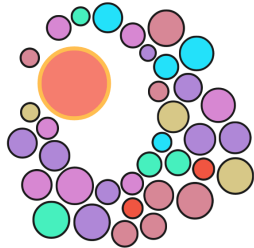




Change line opacity



### Stimulation Interactive



### Skill



Hand and Eye Coordination



Sustaining Attention

### Taks

1

### Difficulty

Constant

### Individualization

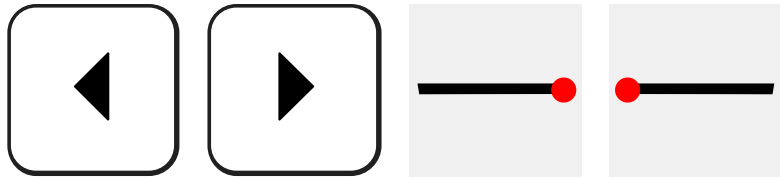
Surprise

space

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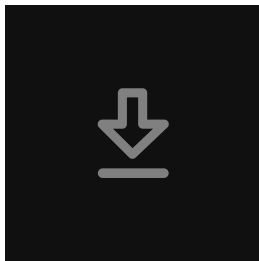
Change opacity



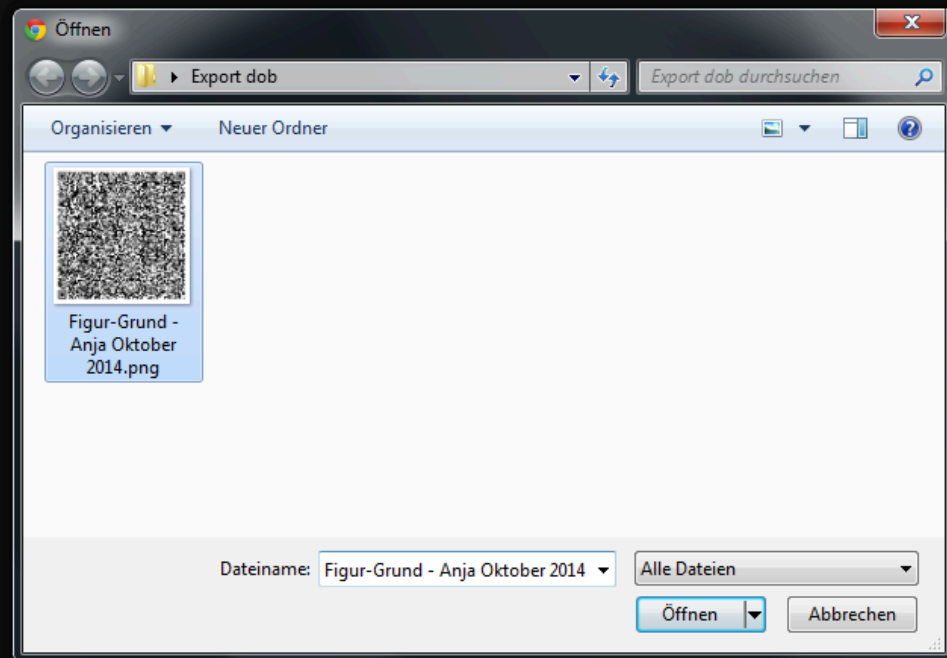
### 3.4. Import exercises from dob pro

To the 10 exercises of the basic version, a maximum of 10 exercises can be added. These exercises are provided and exported by dob pro users as a QR-Code. If more than 10 exercises are imported, the oldest will be deleted.

#### 3.4.1. Import exercises: dob online



Click *Import*



Importieren

Click *Select file*

Choose the QR-code and confirm the selection

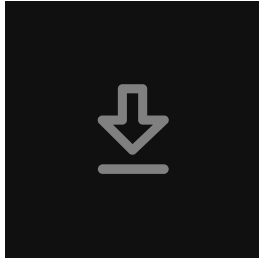
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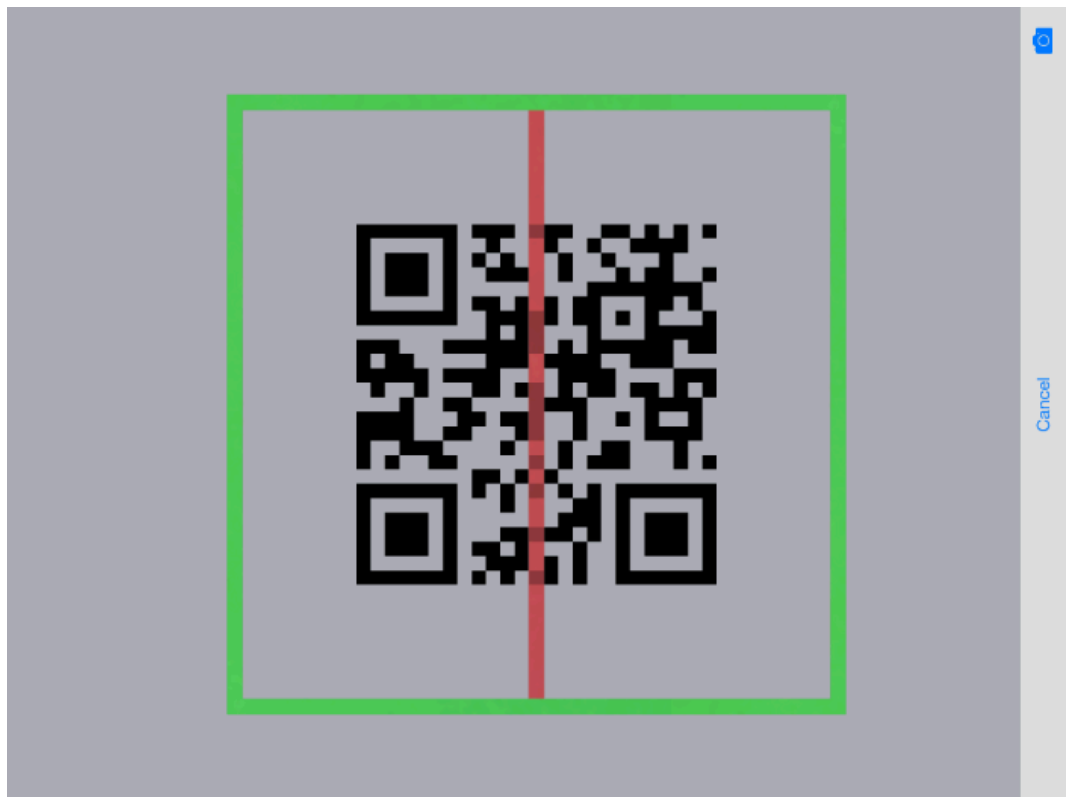
Exercises will be extracted and displayed in the import area.

Note: An image of the QR-Code can actually not be taken and imported by tablet camera.

### 3.4.2. Import exercises: dob iOS App



Click *Import* gives access to the code scanner.



Move the green frame over the code image.

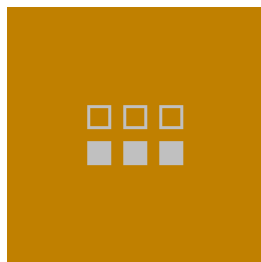
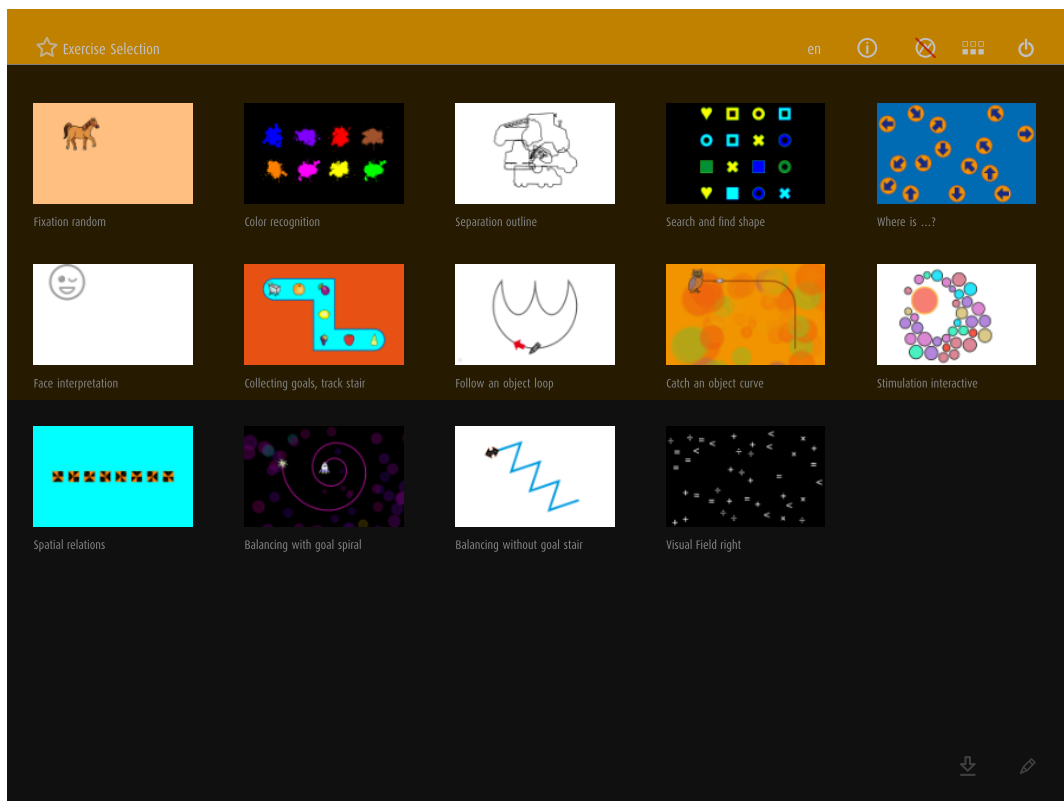
It will automatically be scanned and the exercises will be loaded to in the import area.

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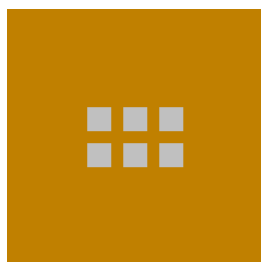
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### 3.5. Manage imported files

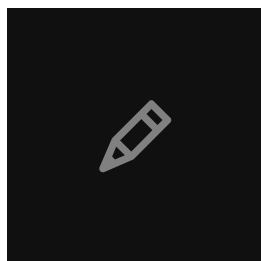




Display only imported exercises



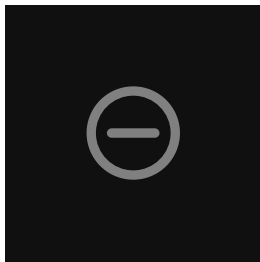
Display all exercises



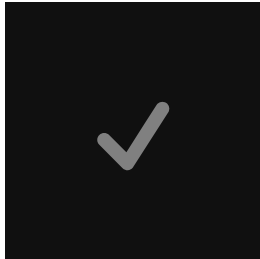
Open editing options  
 Drag the thumbnail with your finger (touchscreen) or mouse to place it wherever you want.

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Remove exercise



Exit editing mode

## 4. Evaluation exercise

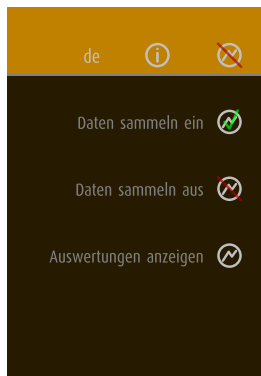
While you are working, dob captures any typing and clicks on your computer screen, whether these are right or wrong and measures the time span between any action on the computer screen.

A simple click on the  button in the main menu will open evaluation settings.

### Note

Exercises are not evaluated in module **stimula**.

### 4.1. Evaluation settings



Exercise data are stored.

Data are not stored.

Access to the stored evaluations

### Note

dob can only store a limited number of exercises. The number depends on the complexity of the data. Take screenshots of important evaluations to store them permanently.

### 4.2. General options

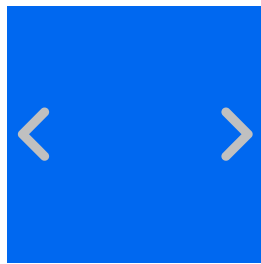
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Jacob / identified all shapes		
	Date	Time
	2016-08-24	07:56
Exercise: Duration	Total Duration [sec]	Sum tasks [sec]
	40.0	23.7
Task / Opacity	Error after [sec]	Correct after [sec]
1 1.00		4.4
2 1.00		6.1
3 1.00		6.0
4 1.00		7.1
Task: Duration	Average [sec]	
	5.9	

Notes, objects and values

Activities on the screen



Navigate through evaluations



Delete evaluation



Module



Exercise name

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Thumbnail



Back to the main menu



Personal notes

Date and time

Total Duration:: Time per complete exercise

Sum Tasks: Duration minus the time for confirmations and rewards = pure exercise time

Task list

Average time per task

### 4.3. Evaluation examples

Depending on module or exercise category, evaluation shows different values and presents the activities on a single or on several screens.

#### 4.3.1. Evaluation 1:

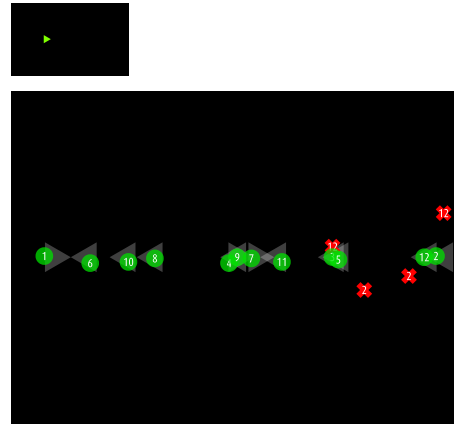
##### Modul spot – Gaze Switching horizontal

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Jacob / Difficulties on the right - animated object in Task 12 to support detection		Date	Time
		2016-08-24	16:07
Exercise: Duration		Total Duration [sec]	Sum tasks [sec]
		58.0	58.0
Task / Opacity	Error after [sec]		Correct after [sec]
1	1.00		2.3
2	1.00	4.5 7.5	11.2
3	1.00		4.8
4	1.00		1.9
5	1.00		3.0
6	1.00		2.2
7	1.00		3.4
8	1.00		1.9
9	1.00		2.3
10	1.00		2.4
11	1.00		3.0
12	1.00	5.7 10.5	19.6
Task: Duration		Average [sec]	
		4.8	



Task / Opacity / Time between beginning task and click / Thumbnail object

Click outside any object **error time**

Task 2:

2 Clicks on the left side underneath the object

Task 12:

2 Clicks on the left side above the object

#### Observations and interpretations

- Needs much more time for objects at the right edge of the screen.
- At the right side many clicks outside the objects.
- Restrictions of the visual field?

The activities on the screen are displayed on one screen for following exercise categories:

- Fixation spot
- Gaze Switching spot
- Visual Field spot, spotPlus

### 4.3.2. Evaluation 2: Modul spotPlus – Search and find shape

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Task / Time until click on the correct object / Objekt

Wrong Time until click on the wrong object / Object

Task 3, 5, 8:

Click on the wrong object

Outside Time until click outside the object / Object

Task 7:

Klickt 2x clicks beside object

Skipped task (SPACE)

Task 9 and 10:

breaking off

#### Observations and interpretations

- Confuses shapes (filled square with frame)
- Nos ystematic search
- Overwhelmed with increasing number of objects
- Practice search strategies

Activities are displayed on 6 screens.

Exercises with more than 6 tasks share clicks of several tasks (e.g. task 1 and 2) on one screen.

### 4.3.3. Evaluation 3: Modul zoom – Contrast

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Evaluation exercise    zoom    Face interpretation L\_pos\_1

Jacob / Faster detection of objects on the left side

Date: 2016-08-24    Time: 16:42

Exercise: Duration    Total Duration [sec]: 58.0    Sum Tasks [sec]: 57.9

Task	Opacity	from	to	Click at	Duration [sec]	
1		0.00	1.00	0.28	2.8	😞
2		0.00	1.00	0.77	7.7	😊
3		0.00	1.00	0.70	7.0	😊
4		0.00	1.00	0.81	8.1	😞
5		0.00	1.00	0.22	2.2	😞
6		0.00	1.00	0.39	3.9	😞
7		0.00	1.00	0.61	6.1	😞
8		0.00	1.00	0.18	1.8	😊
9		0.00	1.00	0.83	8.3	😊
10		0.00	1.00	1.00	10.0	😞

Task: Duration    Average [sec]: 5.8

Task / Opacity: Change from 0 to 100% / Opacity when clicking /  
 Time until click / Object

e.g. Task 3:  
 Object detected at 70% opacity after 7 seconds

Clicks outside object

Task 2 and 9:  
 One click outside object

*Observations and interpretations*

- Enjoys working with emoticons
- Can interpret facial expressions
- Faster detection of objects on the left side
- Restrictions of the visual field?

Activities are displayed on 6 screens.  
 Exercises with more than 6 tasks share clicks of several tasks (e.g. task 5 and 6) on one screen.

**4.3.4. Evaluation 4:**  
**Modul track – Collecting goals**

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Evaluation exercise track Collection goals, track stair\_R\_col\_1

Jacob / Difficulties with movements away from and towards the body

	Date	Time
	2016-08-24	12:35
Exercise: Duration	Total Duration [sec]	Sum Tasks [sec]
	151.0	112.4
Task / Number of hits		Hit after [sec]
1	-	9.6
2	2	5.8 9.4 15.3
3	2	7.9 10.0 21.6
4	4	7.1 8.4 14.5 17.3 21.2
5	3	4.8 6.5 8.2 24.0
6	2	13.4 14.6 20.6
Task: Duration		Average [sec]
		18.7

Task / **Time until reaching the target** Task 1:  
No collision

**Time until collision**

Task 2:  
Collided after 5.8 and 9.4 seconds on vertically mounted track.  
Reached target at 15.3 seconds.

**Observations and interpretations**

- Knows the collected objects
- Increasing muscle spasms
- Difficulties with movements away from and towards the body

The 6 tasks can be displayed on six different screens.

## 5. Versions

dob and dob pro are available as iOS application or as an online version.

	App version	Online version
License	Perpetual license	Annual license
	Device-bound	Device-independent
Program control	By gestures Supports shortcut keys with external bluetooth keyboard	With shortcut keys If a touchscreen is available: with shortcut keys and gestures
Individualization within the exercises	Limited possibilities Control by gestures	Extended possibilities With shortcut keys (and gestures)

The upgrade to dob+ version via in-app purchase will enable the use of the entire set of exercises. It covers about 2500 exercises sorted by visual skill or module.

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dob pro  
Full version for therapists, coaches and teachers, containing more than 2500 exercises for the training

and observation of 11 basic visual skills and tools to assist individual support planning. Available as an App/application for iOS devices and also as an online version.

Learn more about dob and dob pro: [www.dob.li](http://www.dob.li)

## 6. Thanks

The development of dob was made possible thanks to the generosity of the following institutions:

Blinden-Leuchtturm Zürich

Ella Gattiker-Liechti-Stiftung

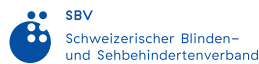
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Roches-Utiger Stiftung



Schweizerischer Blinden- und Sehbehindertenverband SBV

SZB, Schweizerischer Zentralverein für das Blindenwesen

Staub Kaiser Stiftung

Stiftung Bertly Maikler



Stiftung Denk an mich

Stiftung für blinde und sehbehinderte Kinder und Jugendliche Zollkofen

Stiftung für das behinderte Kind

Stiftung Solidago



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## 7. Note

### Photosensitive Warning

A very small percentage of individuals may experience epileptic seizures when exposed to certain light patterns or flashing lights. Exposure to certain patterns or backgrounds on a computer screen may induce an epileptic seizure in these individuals. Certain conditions may induce previously undetected epileptic symptoms even in persons who have no history of prior seizures or epilepsy.

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