

The BEHAVE application: an evidence-based tool to manage social emotional behavioural difficulties

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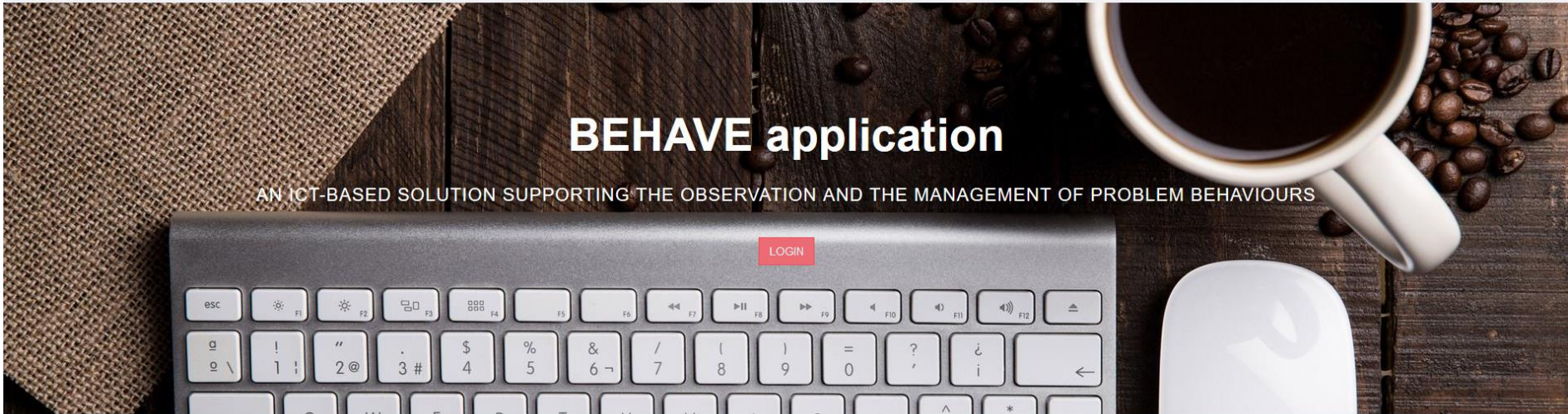
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*Teachers are
often unprepared
to manage
children with
Social, Emotional,
and Behavioral
Difficulties
(SEBD)*



Emotional and behavioural difficulties range from social maladaptation to abnormal emotional stresses. They are persistent (if not necessarily permanent) and represent significant learning difficulties and differences. They may be multiple and may manifest themselves in many different forms and severities. They may become apparent through withdrawn, passive, aggressive or self-injurious tendencies.





BEHAVE application

AN ICT-BASED SOLUTION SUPPORTING THE OBSERVATION AND THE MANAGEMENT OF PROBLEM BEHAVIOURS



Measure

Build your session-to-session measure using many different widgets



Collect

Collect data directly through your favourite device: personal computer, mobile phone, or table



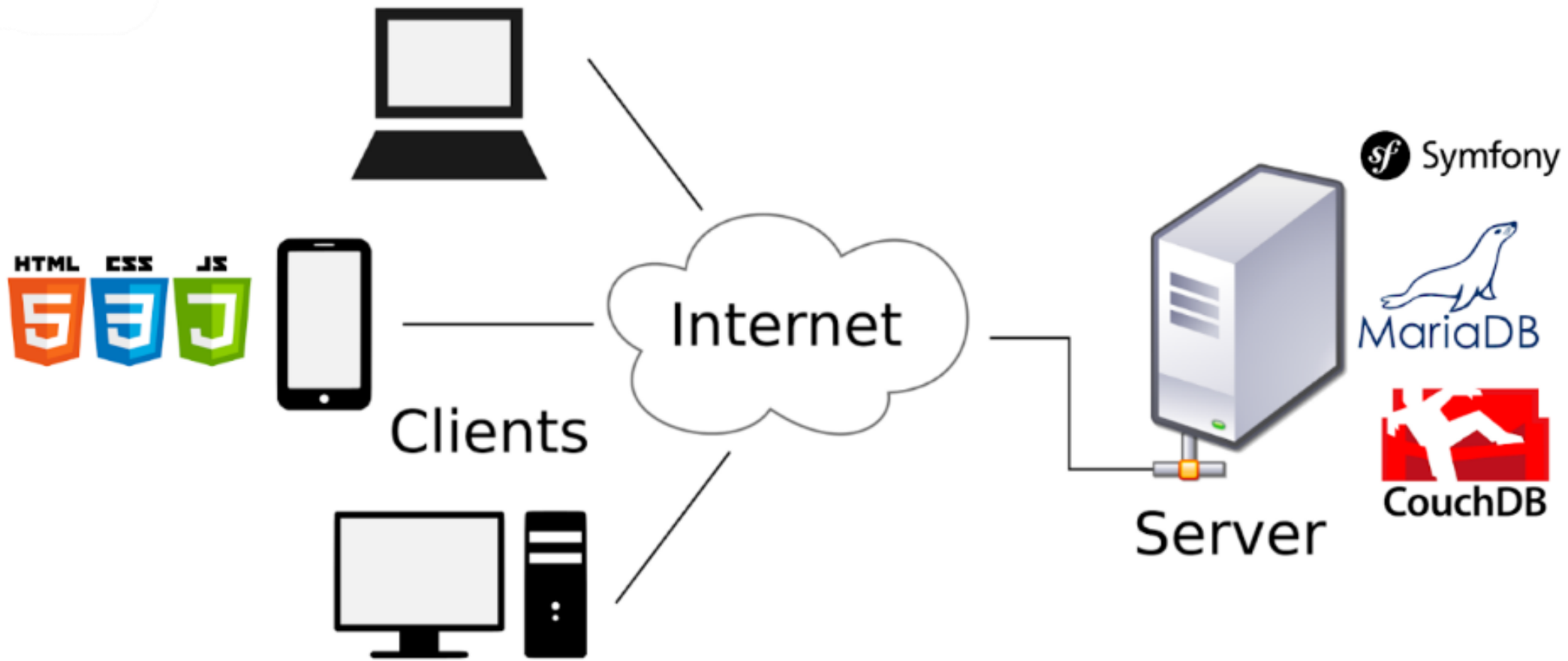
Analyze

Starting from a Montecarlo simulation, the application chooses the best algorithm to calculate the effect size of the applied behavioural intervention plan

The **BEHAVE application** is a web application aimed to ease the way for teachers to apply behavioural evidence-based interventions at school

Architecture

A top-down view of a dark, textured wooden desk. In the center, the word "Architecture" is written in a clean, white, sans-serif font. Surrounding the text are various office supplies: a green pen and a blue pen in the top left; a green sticky note in the top right; several colored pencils (blue, green, yellow, light blue) in the bottom right; and several blue and green paper clips in the bottom left.



A dark wooden desk with school supplies including pens, pencils, paper clips, and sticky notes. The text "STEP 1: Student creation" is centered on the desk.

STEP 1:
Student creation

BeHave


Students Measures

G Gianluca Merlo

Home • Students

Students

LIST



test

✎ 👁 🗑

The screenshot shows a web interface for a student management system. At the top, there is a dark navigation bar with the 'BeHave' logo, 'Students' and 'Measures' tabs, and a user profile for 'Gianluca Merlo'. Below the navigation bar, the page title is 'Students'. A white box contains a 'LIST' header and a single student profile card. The card features a placeholder icon of a person with brown hair and a blue shirt, the name 'test', and three action icons: a pencil, an eye, and a trash can.

A **student's name** must be inserted to start the **behavioural monitoring process**. Students are characterized by id's or nicknames to guarantee the **safety of pupils' personal data**. Other **optional information** requested by the application are the **year of birth**, the **sex**, the **disorders** of which they are **diagnosed with** and any **comorbidities** or co-existing conditions

A dark wooden desk with stationery items: pens, paper clips, and pencils.

STEP 2:
Measure creation

Compose your measure

Name*

Description*

+ Add item | Submit | Cancel

- Choice
- Direct Observation
- Integer
- Four Quadrant Diagram
- Range
- Text

Widget typology	Description	Validation rules
Choice	The widget creates a radio buttons and a selection process. Multiple selections of values are allowed.	The values sent from the form have to be the same as those included in the lists.
Direct observation - duration	The widget is designed to measure the duration of a phenomenon.	The values sent from the form have to be in the timestamp format.
Direct observation - frequency	The widget is aimed to count the occurrences of a phenomenon.	The values sent from the form have to be in the timestamp format.
Integer	The widget is aimed at supporting the creation of items with a numeric response.	The value sent from the form has to be an integer.
Four quadrant diagram widget	The widgets is intended to create a cartesian plane. The user has to select the point in the plane where he feels to belong according to the predefined categories.	The values sent from the form are 2 integers, 1 for the x axis and 1 for the y axis.
Range	The widget is intended to create an input with a numeric value which must be no less than a given value, and no more than another given value.	The value sent from the form is included in the planned range.
Text	The widget is intended to create a textual input.	The value sent from the form must be a textual type.

A dark wooden desk with various stationery items. In the top left, there are several pens in green, blue, and black. In the bottom left, there are several blue paper clips. On the right side, there are several colored pencils in blue, green, yellow, and purple. A green sticky note is partially visible in the top right corner.

STEP 3:
Plan the observation

New observation No Single case?

Name*

Description*

Place

Setting

Measure*
Direct observation

Filling instructions

Schedule observation dates*
 ON

Repeat option
Weekly

every n week(s)

Weekly days of week
 Sun Mon Tue Wed Thu Fri Sat

Repeat end option
After

Nr. occurrences

Students

CALENDAR

< > TODAY MONTH WEEK DAY

May 2019

SUN	MON	TUE	WED	THU	FRI	SAT
28 10a Interruption of d	29 10a Interruption of d	30	1 10a Interruption of d	2	3 10a Interruption of d	4
5 10a Interruption of d	6 10a Interruption of d	7	8 10a Interruption of d	9	10 10a Interruption of d	11
12 10a Interruption of d	13 10a Interruption of d	14	15	16	17	18

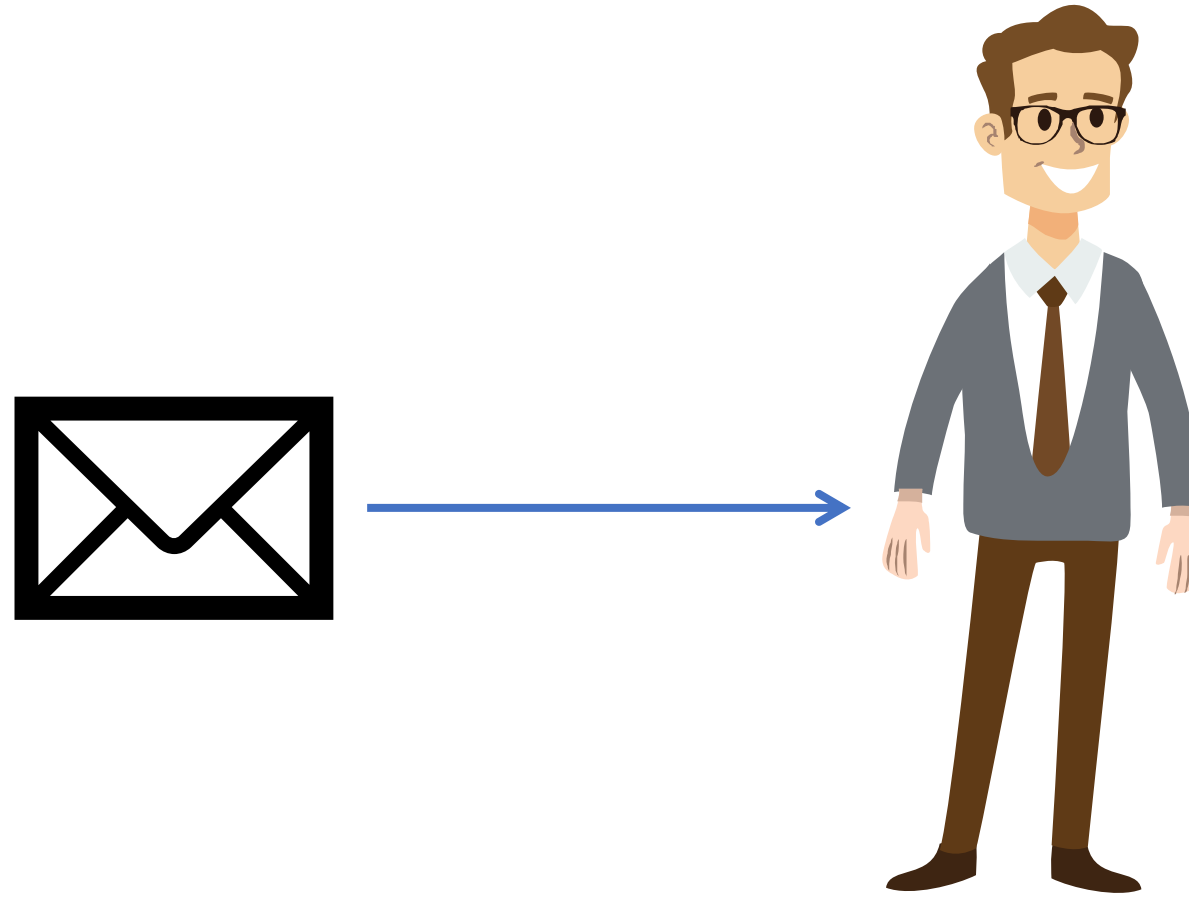
The **behaviour** has to be defined describing the behaviour in a **specific way** that makes it possible to **identify** the same behaviour when observed by different people.

Users can choose **how often** they want the **observation** to **repeat**, and when they want the repeating event to end.

According to these settings the system automatically adds the events in a **calendar**. The date or hour of an event can be edited if needed.

A top-down view of a dark wooden desk. In the top left, there are several pens in green, blue, and silver. In the top right, there are green and purple sticky notes. In the bottom left, there are several blue paper clips. In the bottom right, there are several colored pencils in blue, yellow, green, and purple. The text "STEP 4: Data collection" is centered on the desk in white.

STEP 4:
Data collection



The “observer” will receive a notification via email to remind them to collect the data at the right time

Data gathering about test

🏠 Interruption of discussions during the class

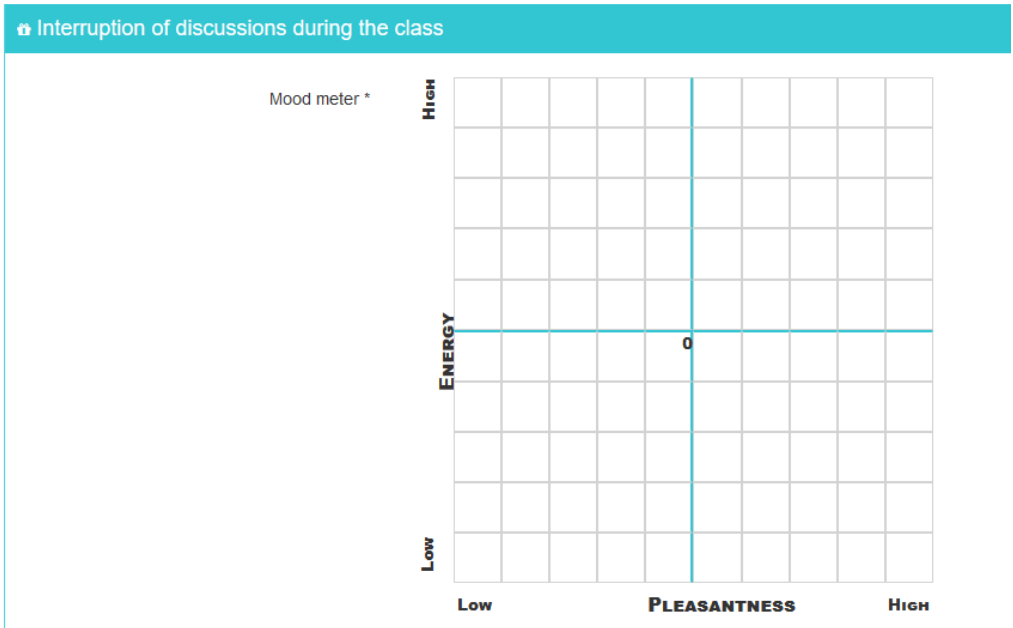
Interruptions*

Data gathering about test

🏠 Interruption of discussions during the class

How many times?*

Data gathering about test



Data gathering about test

🏠 Interruption of discussions during the class

How many times?*

A top-down view of a dark wooden desk. In the top left corner, there are several pens in various colors (green, blue, black). In the top right corner, there are two sticky notes, one green and one purple. In the bottom left corner, there are several blue paper clips. In the bottom right corner, there are several colored pencils (blue, yellow, green, purple) and a black pencil. The text "STEP 5: Data analysis" is centered on the desk in white.

STEP 5:
Data analysis

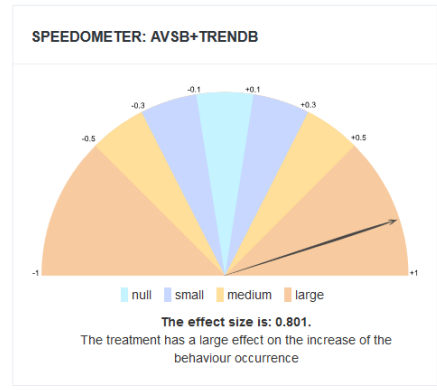
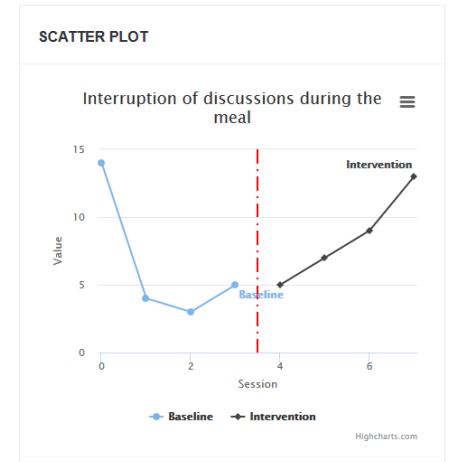
PHASES TO BE COMPARED

Statistical index ▾

- 1 **BASELINE**
4 observations
- 2 **INTERVENTION**
4 observations

ITEMS TO BE ANALYZED

- 1 **TEST**



PARKER'S TAU-U

Partition and Full Matrices

	TREND A	TREND B	FULL MATRIX
n pairs	6	6	28
n pos	2	6	19
n neg	4	0	8
S	-2	6	11
Tau	-0.333	1	0.393
SDs	2.944	2.944	8.021
VaRs	8.667	8.667	64.333
Z	-0.679	2.038	1.371
p(Z based)	0.497	0.042	0.17

TAU_U ANALYSIS

	A vs B	A vs B + TREND B	A vs B + TREND B - TREND A
n pairs	16	22	28
n pos	11	17	21
n neg	4	4	6
S	7	13	15
Tau	0.438	0.591	0.536
SDs	6.887	7.475	8.021
VaRs	47.429	55.881	64.333
Z	1.016	1.739	1.87

If you liked it or you want to participate in the testing phase...

Drop me a line | gianlucamerlo@itd.cnr.it