

The BASE application: An evidence-based support tool to promote a digitally assisted school-wide intervention.

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BASE
Behavioral Assessment to Improve School Environment



Erasmus+

Aim of this presentation

To present a preview of the set of functionalities of the BASE system in order to:

- receive feedback and suggestions for the next step of development process;
- collecting comments from stakeholders and experts



Behavioral Assessment to Improve

Behavioural Assessment to improve School Environment (BASE) Project

- The application is the major output of the **BASE European Erasmus+ project**, aimed at response to the European requirement of reforming the whole scholastic disciplinary system to offer students the opportunity to experience the school context as socially predictable, consistent, safe and positive where norm-violating behaviour is minimized, and prosocial behaviour is promoted.
- The Project identifies in the proven US-born concept of the Positive Behaviour Support (**PBS**) supported by the functional behavioural assessments (FBAs) one possible solution and tries to adapt its practical and evidence-based principles to the heterogeneous European school settings.



BASE
Behavioral Assessment to Improve School Environment

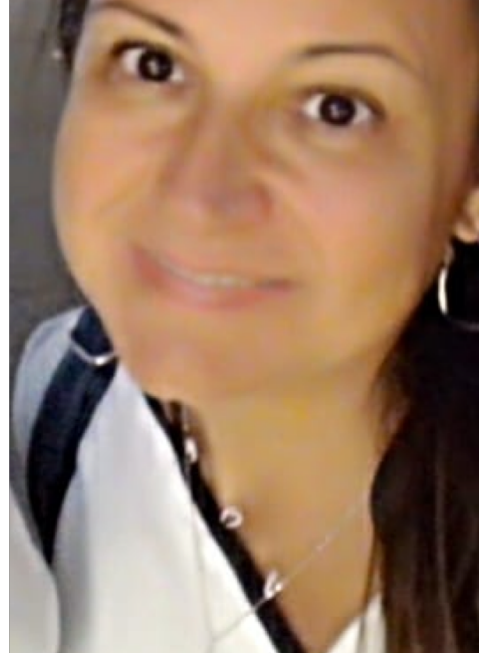
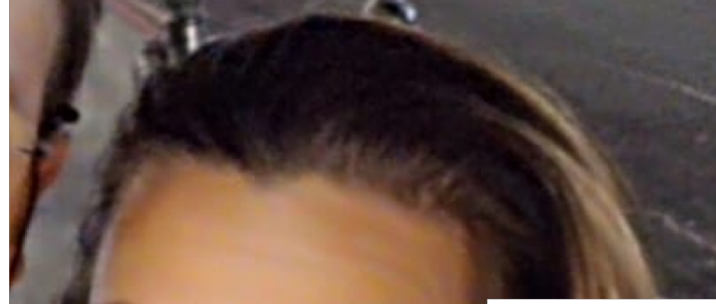


Erasmus+



7 Scientific partners
5 European schools (PT, RO, IT, TR, NL)





The research group



Research activities



investigate and introduce an evidence based approach in the teaching and learning process.



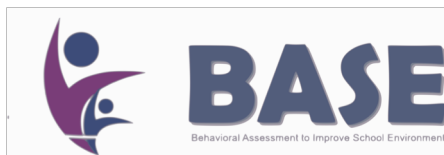
design evidence-based tools for facilitating mobile digitally assisted observation processes and evaluation practices.



whaamproject.eu



aha.ucd.ie



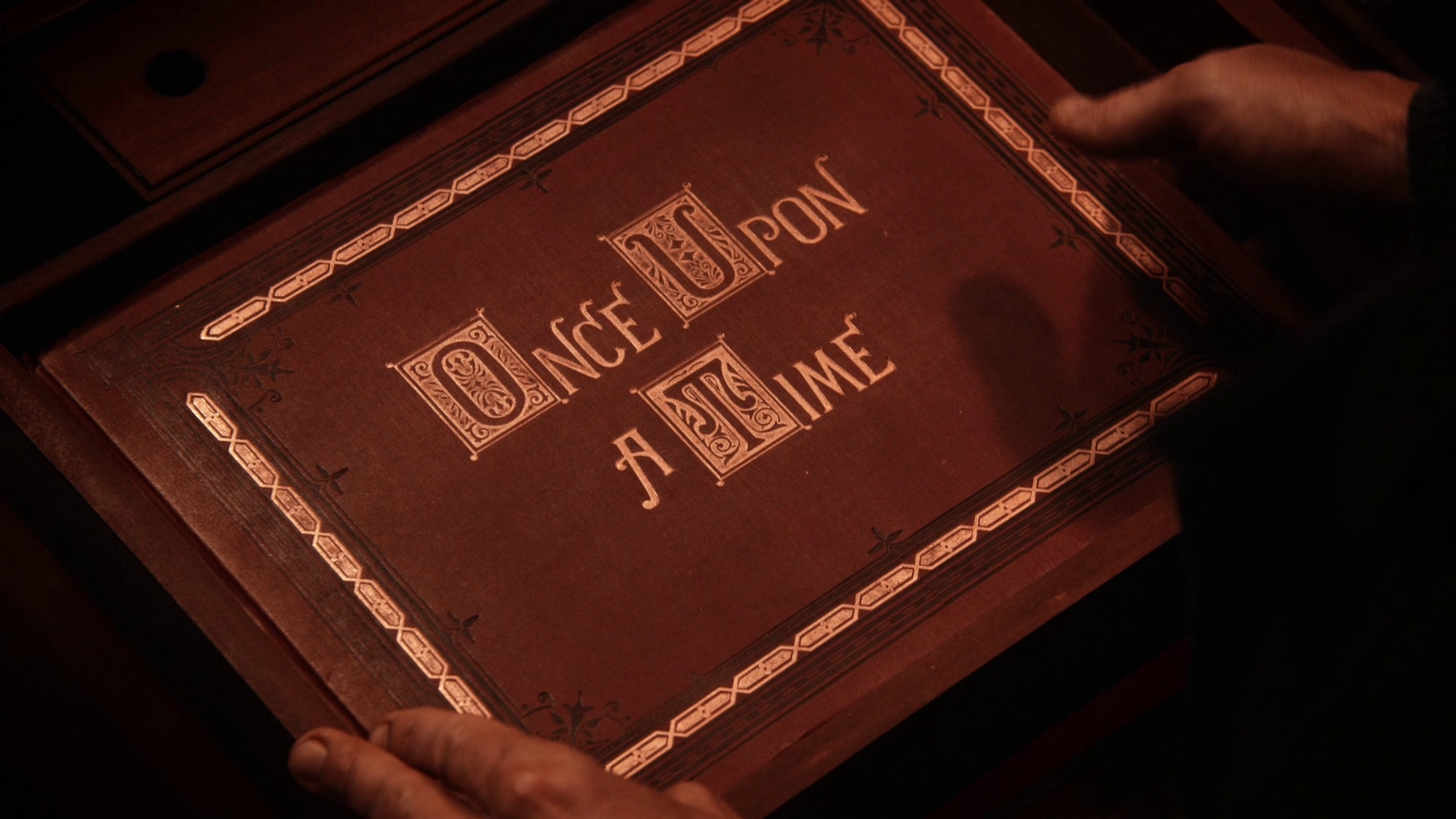
baseproj.eu


European projects



behaveproject.eu

ONCE UPON
A TIME





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Web Health Application for ADHD Monitoring

We believe that effective behaviour monitoring is helpful in the diagnosis, assessment and the treatment of ADHD. This site will tell you about the WHAAM app and how this mobile and web based application can be used to support parents, professionals and children with ADHD through the accurate recording of specific behaviours.


Take a Tour



This project has been funded with support from the European Commission. This publication (communication) reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.



Lifelong Learning Programme

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The **WHAAM application** was specifically designed to support children with **Attention Deficit Hyperactivity Disorder**



WHAAM supported the **Functional Behavior Assessment** approach trying to discover the conditions that **trigger** and **maintain** an unwanted **behavior**.



The **WHAAM application** supported only **A-B designs**



The **WHAAM application** was optimized for **mobile** devices based on **Android** operating systems



WHAAM included a **predefined** set of tools:

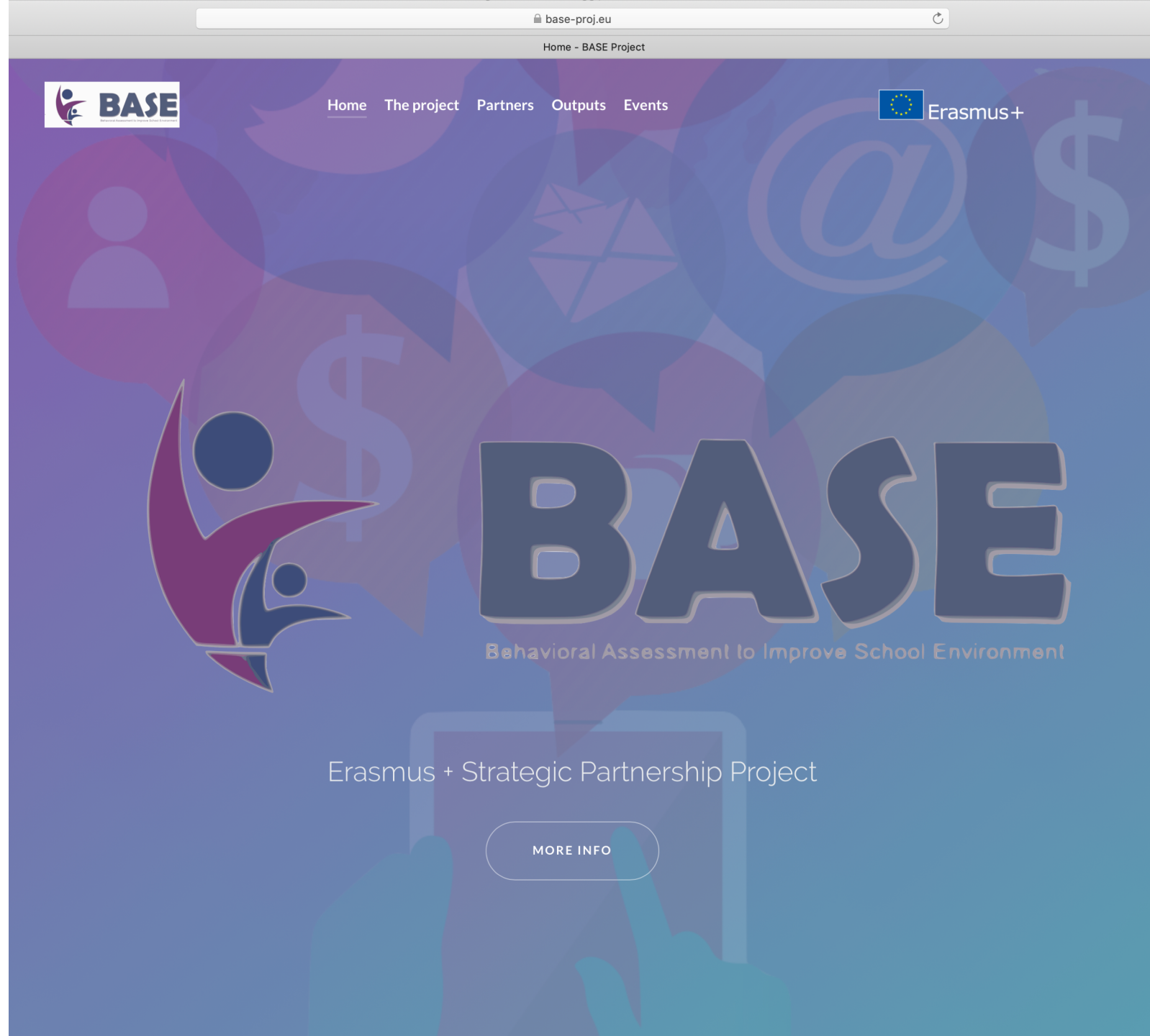
- **Sistematic observation** (frequency + duration)
- **ABCs**



The **WHAAM application** analyzed the gathered data only applying the **TAU-U** algorithm

The BASE application

The BASE application is a new Evidence-Based support tool aimed to promote a digitally assisted school-wide intervention, according to the PBIS methodological Framework.



Timeframe

01-09-2017 – 28-02-2019

PARTNERS

- UNIPA
- UNIPORTO
- STICHTNG VU
- UCD DUBLIN



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DEGLI STUDI
DI PALERMO

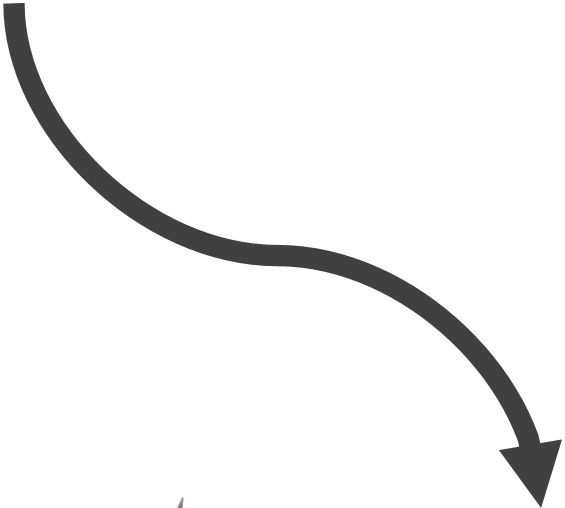


VRIJE
UNIVERSITEIT
AMSTERDAM

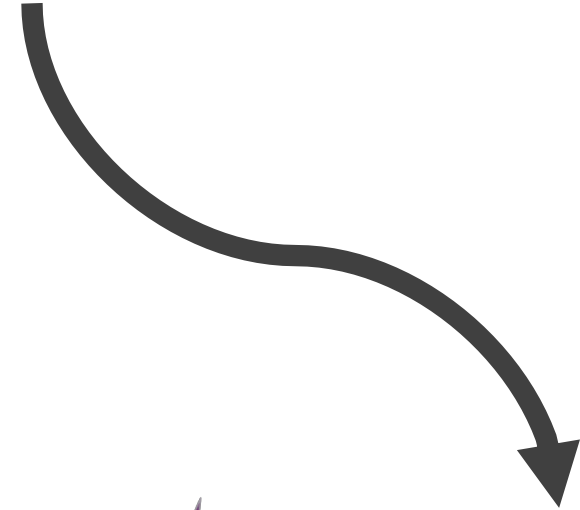


What change from WHAAM to the BASE system (1)

	WHAAM	BASE
User roles	Parents, Teachers, Health professionals	PBS Team members, Teachers, Students, Parents
PBS Tier level support	II, III	I, II, III
Single case design method of observation	AB	AB, ABA, ABAB...
Expectation matrix management support	No	Yes
Composing of different observational tools	No	Yes



What change from WHAAM to the BASE system (2)

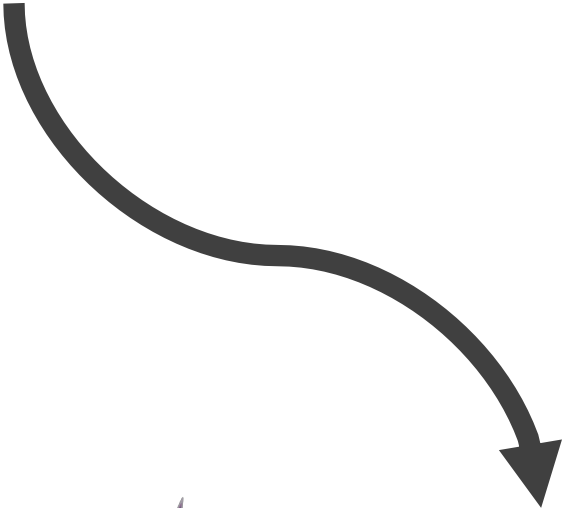


BASE
Behavioral Assessment to Improve School Environment

	WHAAM	BASE
Number of observers	YES Single observer	YES Multiple observer
Tools to evaluate the well-being status of teachers and students	NO	YES
Statistical evaluation of systematic direct observation	TAU-U	TAU-U Allison and Gorman
Reporting and data exportation	YES	YES

What change from WHAAM to the BASE system (3)

	WHAAM	BASE
Web Responsive Application	NO	YES
Student as an active user of the system	NO	YES
PBIS teaching and learning support	NO	YES (Repository)
Open source	YES	YES



Features

Core functionalities

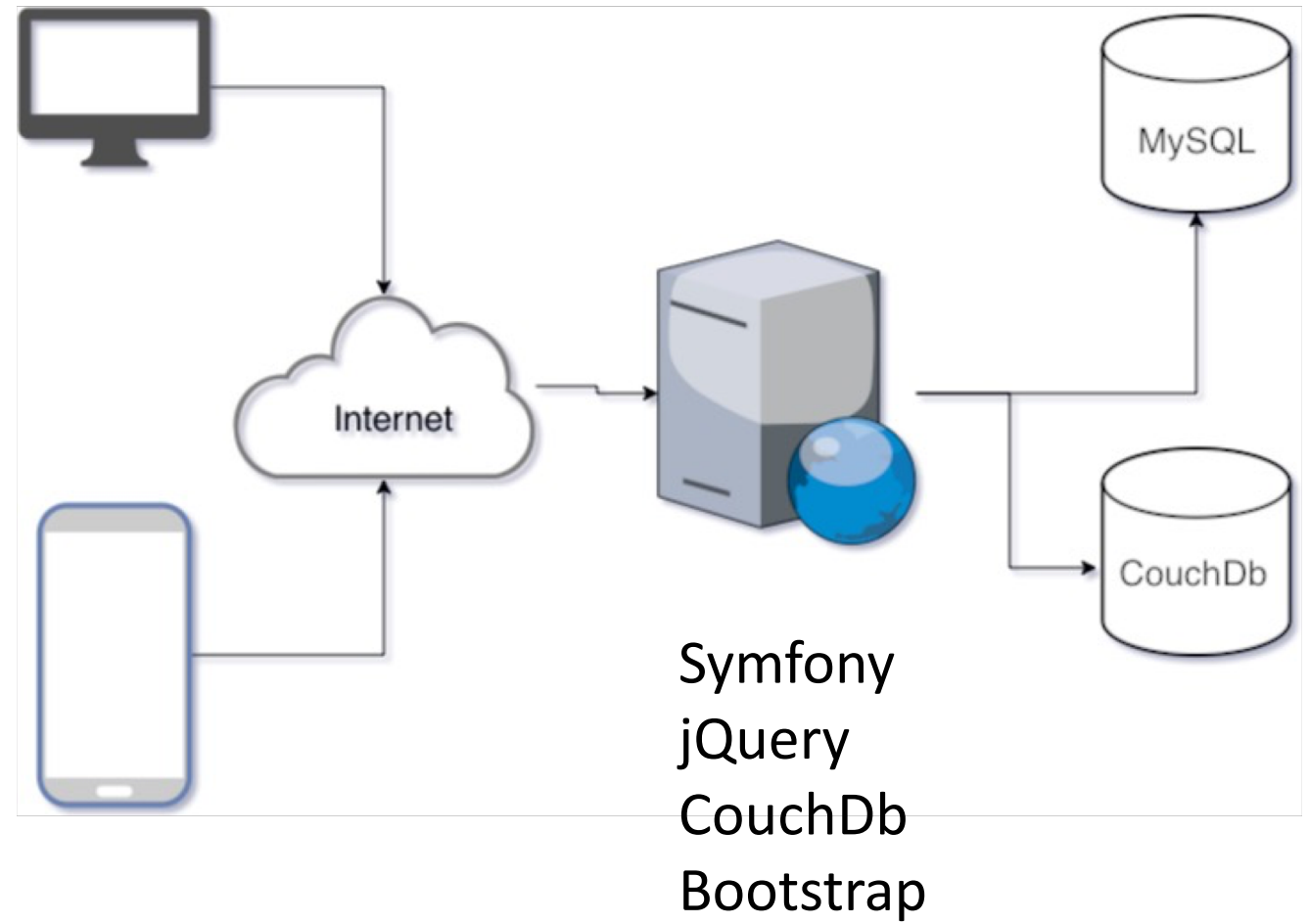
- Creation and management of the Matrix of Expectations
- Creation of the list of Minor and Major behavioural violations
- Creation of CICO and collection of the related data
- Reinforcement mechanism through token economy in order to promote and reward the student's positive behaviours in CICO system
- Multiple Single-Subject Designs (AB, ABA, ABAB, etc.)
 - Planning of a period of observation, assignment to an observer and submitting of the observation tool

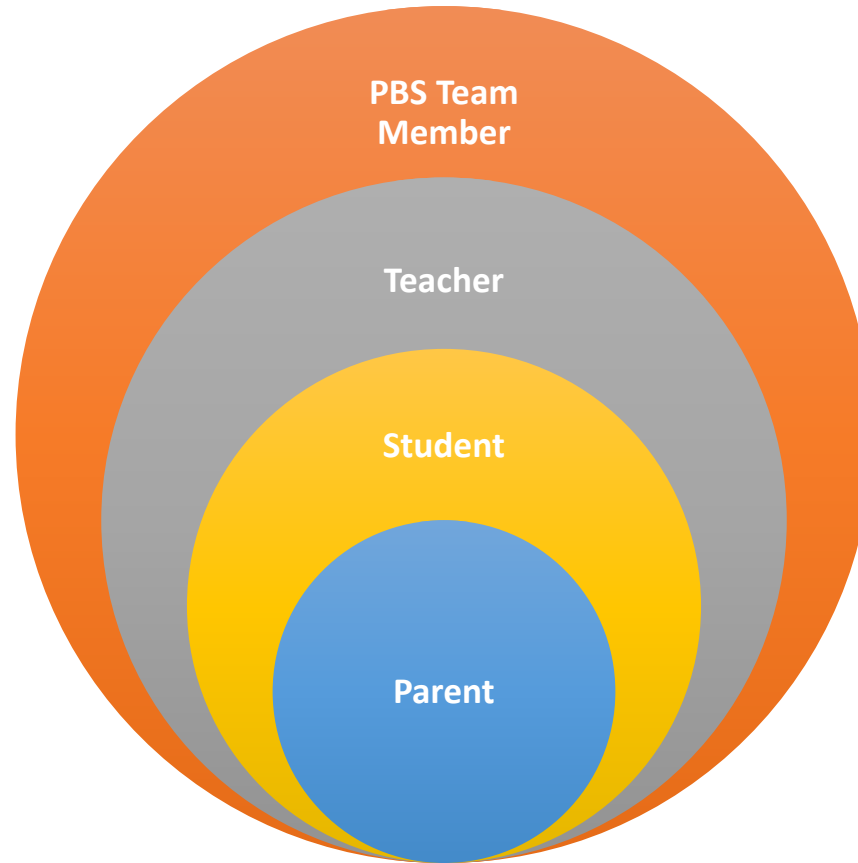
Features

Core functionalities

- Creation of an observation tool like:
 - Measurement tools to evaluate the well-being of teachers and student (i.e. rating scales, emotional thermometer)
 - Screening tool based on the Matrix of Expectations' values in order to identify the behaviours at risk (SWPBS)
 - Digital management of ODRs
- Gather observational data related to a behaviour
- Statistical evaluation of an observation

BASE Web application architecture



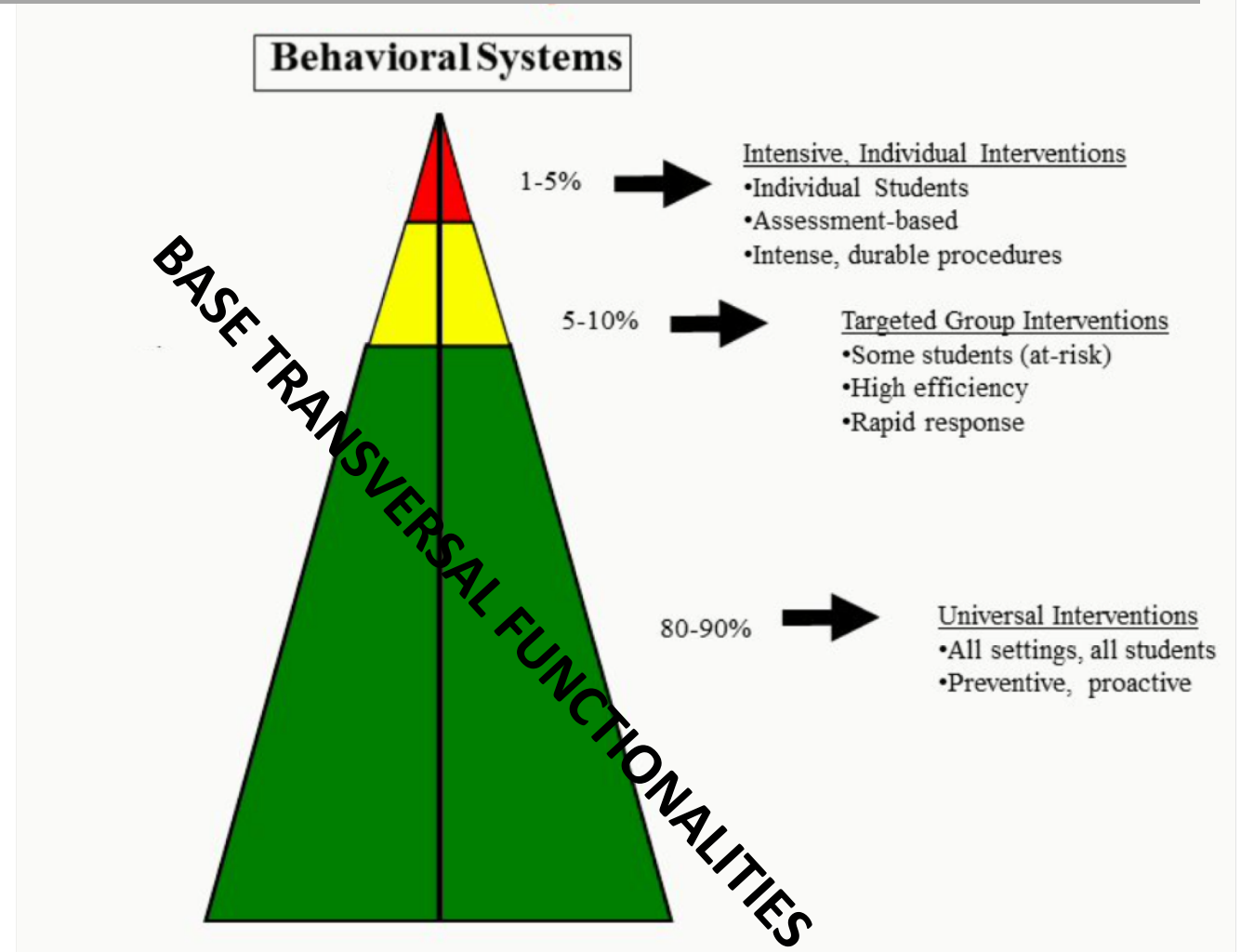


User Roles of BASE application

The PBIS key principles supported by the BASE System

A versatile system able to provides transversal functionalities at the three levels of PBIS implementation

Three levels of implementation





The PBS key principles supported by the BASE System

Support the creation and management of the PBS School Leadership Team

Roles involved

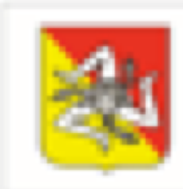
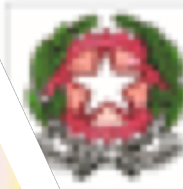


School Leadership Team Member is able to:

- have complete view of the school's data
- assign a teacher coordinator for each classroom
- access to the data of each classroom
- create measurement tools for the behavioural observation and assign it to an observer (such as ODRs, Positive Behaviour Cards, Screening tools, etc.)
- create and to manage the Matrix of Expectation
- set up a CICO monitoring tool
- create and to manage the list of Minor and Major behaviours

The PBS key principles supported by the BASE System

The creation of the expectation matrix has a key role in the promotion, learning and sharing of school values



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BEAUTY: Bring Equality and Authenticity To

"Beauty will save the world" (Fedor Dostoevski)

VALUE 1
your **Environment**

ENVIRONMENT

ROOM CLEAN

VALUE 2

Be **Authentic**

RESPONSIBILITY

- BE ON TIME
- LISTEN ATTENTIVELY TO TEACHERS AND RESPOND APPROPRIATELY
- USE PERSONAL ELECTRONIC DEVICES (MP3, I PHONE) ONLY WHEN REQUIRED TO MEET CURRICULAR OBJECTIVES



1

Define the name of Matrix (slogan)

2

Insert the number of expectations

3

Insert the number of locations

4

Put the expectations in the matrix

5

Put the locations in the matrix

6

Add the behaviours for expectations and locations

The BASE creation process of Expectation Matrix

Matrix of Expectations

Slogan

Beauty: Bring Equality and AUthenticity To Yourself

Expectations

3

Respect for Environment

Responsibility

Respect for Others

Locations

1

Classroom

Next

Creation of Matrix Step 1

1

Define the name of Matrix (slogan)

2

Insert the number of expectations

3

Insert the number of locations

4

Put the expectations in the matrix

5

Put the locations in the matrix

Matrix of Expectations

Behaviors in Classroom

Respect for Environment

Keep the classroom clean

Keep walls clean

Add a behavior

Responsibility

Be on time

Add a behavior

Respect for Others

Use good manners

Add a behavior

Submit

Creation of Matrix Step 2

6

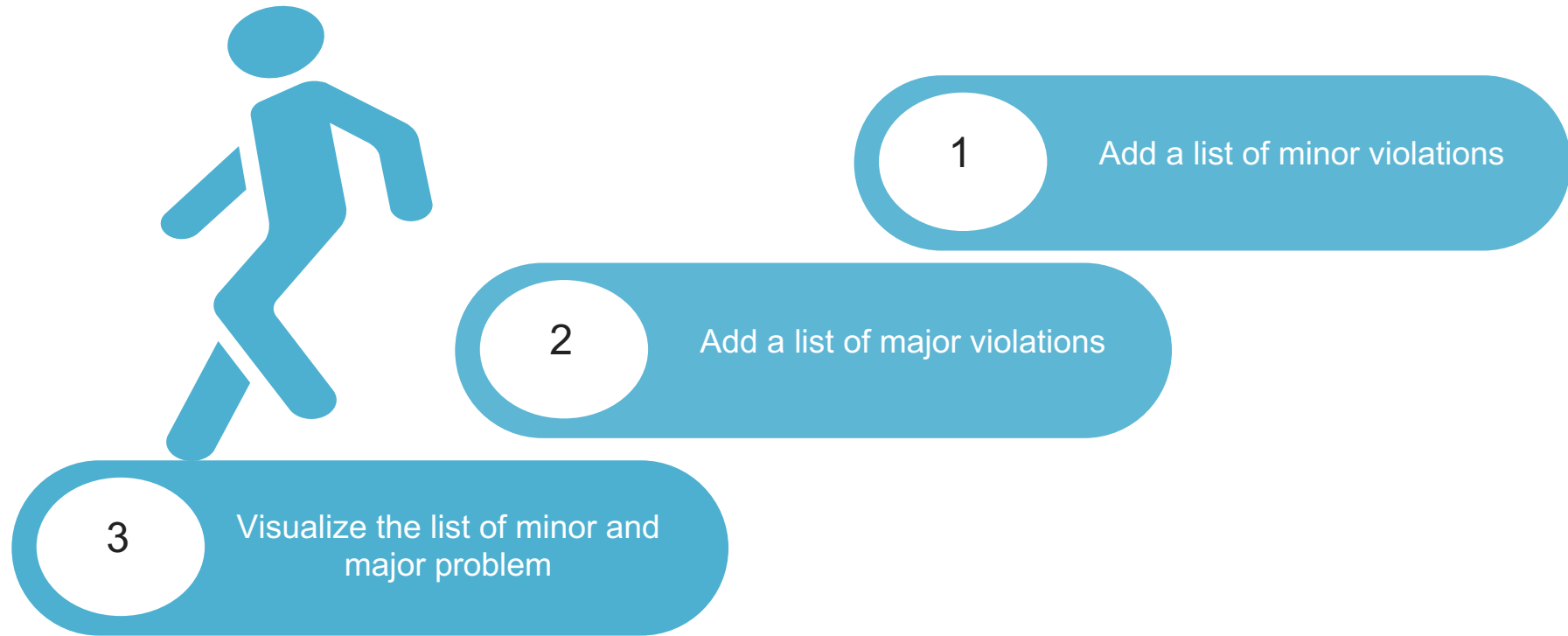
Add the behaviours
for expectation and
location

Matrix of Expectations

Beauty: Bring Equality and AUthenticity To Yourself

Expectations Locations	RESPECT FOR ENVIRONMENT	RESPONSIBILITY	RESPECT FOR OTHERS
CLASSROOM	<i>Keep the classroom clean</i> <i>Keep walls clean</i>	<i>Be on time</i> <i>Listen attentively to teachers and respond appropriately</i>	<i>Use good manners</i> <i>Listen when it's someone else's turn to speak</i>

Visualisation of
matrix



The BASE creation process of
Minor and Major problems

Minor and Major Behaviors

Insert Minor Behaviors

Unprepared for class

Inappropriate clothing

Incomplete homework

Add a new minor behavior

Submit

Add minor
behavior problem



Minor and Major Behaviors

Insert Major Behaviors

Fighting

Inappropriate representation of school

Weapons

Add a new majorbehavior

Submit

Add major behavior problem



Minor and Major Behaviors

Minor Behaviors

Unprepared for class

Inappropriate clothing

Incomplete homework

Major Behaviors

Fighting

Inappropriate representation
of school

Weapons

Add other
behaviors

Visualisation of Minor and Major problem

Check-in/Check-Out

Studente: ABCD1234

Your Goal is 14/18

Goal Percentage

80%

Number of Periods ?

3

Insert here the thresholds for the points assignment
(i.e. 80% corresponds to 8 points)

Number of thresholds ?

3

80%	8
<small>percentage</small>	<small>corresponding points</small>
90%	9
100%	10

Submit

CICO Creation





1

Select a student to observe

2

Build the measure

3

Plan the observation

4

Gather data

5

Label phases and data

6

Analyze data

The creation of measurement and observation process in BASE

Name

Description

Measure

ABC

Observer username, email, or surname and name

Schedule observation dates

ON

Start date

Time range

12:00 AM

12:00 AM

6:00 AM

12:00 PM

6:00 PM

12:00 AM

Repeat option

Weekly

every n week(s)

Weekly days of week

Sun

Mon

Tue

Wed

Thu

Fri

Sat

Repeat end option

After

Nr. occurrences

Submit

Cancel

Plan the observation



🏠 Interruptions of conversation - FULL

Frequency 0

+

Intensity

Submit

Cancel

Gather data



BASE
Behavioral Assessment to Improve School Environment

1 BASELINE
5 observations

2 INTERVENTION
5 observations

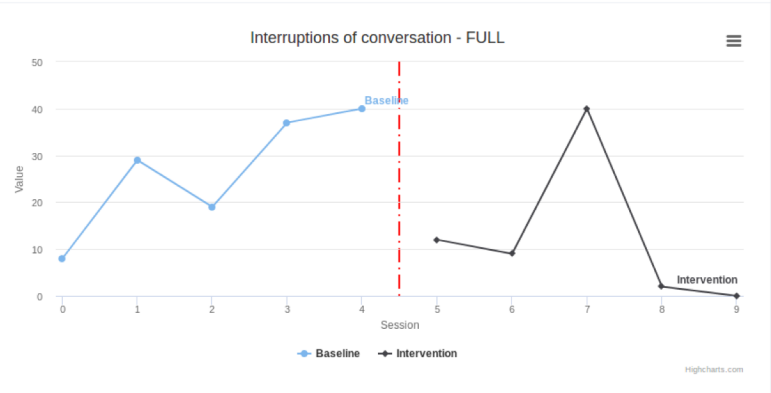
3 FOLLOW UP
5 observations

ITEM BE ANALYZED

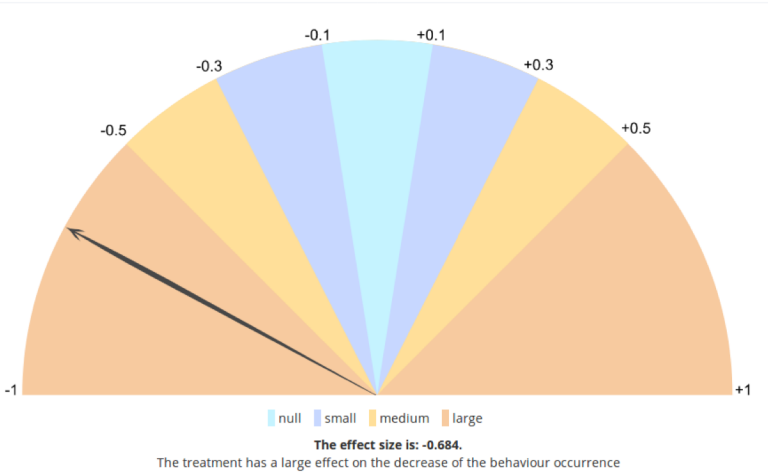
1 FREQUENCY

2 INTENSITY

SCATTER PLOT



SPEEDOMETER: AVSB



PARKER'S TAU-U Partition and Full Matrices

	TREND A	TREND B	FULL MATRIX
n pairs	10	10	45
n pos	9	2	17
n neg	1	8	27
S	8	-6	-10
Tau	0.8	-0.6	-0.222
SDs	4.082	4.082	11.136
VaRs	16.667	16.667	124
Z	1.96	-1.47	-0.898
p(Z based)	0.05	0.142	0.369
r Effect Size	0.952	-0.809	-0.341

TAU_U ANALYSIS

	A vs B	A vs B + TREND B	A vs B + TREND B - TREND A
n pairs	25	35	45
n pos	6	8	9
n neg	18	26	35
S	-12	-18	-26
Tau	-0.48	-0.514	-0.578
SDs	9.545	10.371	11.136
VaRs	91.111	107.56	124
Z	-1.257	-1.736	-2.335
p(Z based)	0.209	0.083	0.02
r Effect Size	-0.684	-0.722	-0.788

Analyze data



Roles involved



Teacher is able to:

- create a classroom group adding students and parents (if he is the classroom coordinator)
- generate an anonymous access code for students and parents (teacher coordinator)
- gather observational data (for instance from CICO)
- make an ODR
- access the observational data report of each student

Access Data Generator

Insert the number of pair of codes (Student, Person In Charge) to generate

Number
of codes

Generate

Show
codes

Student's credentials generator



Access Data Generator

Student

ABCD1234
Butterfly195



A0ACE694
Eagle950



E9DAE521
Dove624



Add
codes

Person in charge

A1B1C1D1



ABC123D4



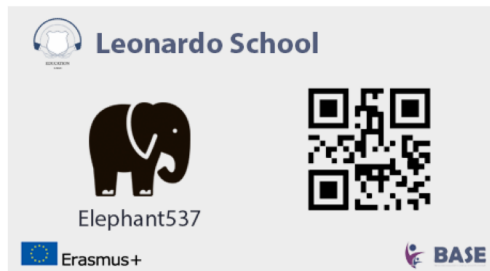
AB12CD34



Student's credentials generator

Access Cards

Print Cards



Student's QR
code access card

Check-in/Check-Out

Studente: ABCD1234

Your Goal is 14/18

Date: 2018-11-08

SAVE

SAVE AND ADD

Periods	Respect for Environment	Responsibility	Respect for others
1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1
	<input type="radio"/> 2	<input checked="" type="radio"/> 2	<input type="radio"/> 2
	<input checked="" type="radio"/> 3	<input type="radio"/> 3	<input checked="" type="radio"/> 3
2	<input type="radio"/> 1	<input checked="" type="radio"/> 1	<input type="radio"/> 1
	<input checked="" type="radio"/> 2	<input type="radio"/> 2	<input checked="" type="radio"/> 2
	<input type="radio"/> 3	<input type="radio"/> 3	<input type="radio"/> 3
3	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1
	<input checked="" type="radio"/> 2	<input type="radio"/> 2	<input checked="" type="radio"/> 2
	<input type="radio"/> 3	<input checked="" type="radio"/> 3	<input type="radio"/> 3

Total: 17/27

CICO Compilation



CICO Session

Date range

From

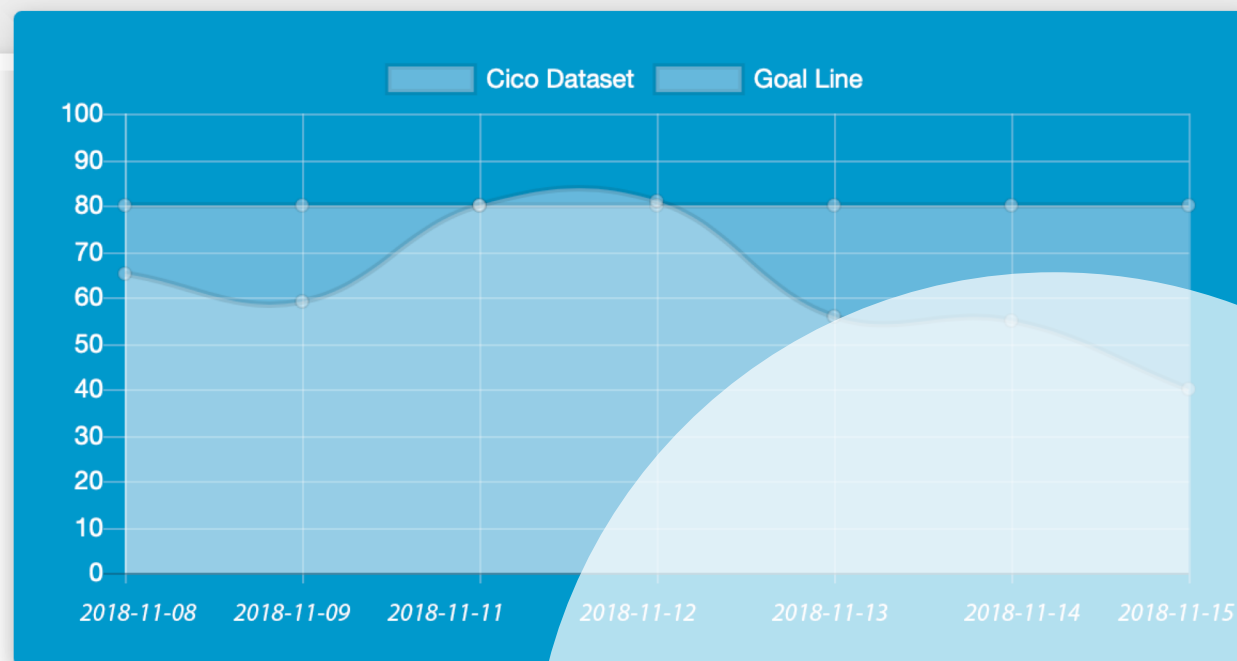
2018-11-08

To

2018-11-15

Available points: **24** ?Average value: **63** ?

Goal Percentage

CICO report
STUDENT: ABCD1234

Rewards Menu

Insert a list of rewards and their corresponding values agreed with the student

Examples:

- Favourite sweet
- Favourite dish
- Favourite snack
- Small toy
- Sports equipment
- CD/DVD
- Rent a movie
- Bedroom stuff
- Attention and affection
- Verbal lodes
- Tv Programs
- Quality time
- Invite a friend home
- Going to the movie or luna park
- Watch a game or a sport event
- Going to a trip
- Going visit a friend

Name of the reward

Value in points

SAVE






SAVE AND ADD

Create a list of rewards



List of Rewards

Student: ABCD1234
Available points: **24**

				
Favourite sweet	Sports equipment	Verbal lodes	Trip	Rent a movie
2	8	3	5	2
ASSIGN THE PRIZE!	ASSIGN THE PRIZE!	ASSIGN THE PRIZE!	ASSIGN THE PRIZE!	ASSIGN THE PRIZE!

List of reward for
assigning awards

Office Discipline Referral (ODR)

Student: ABCD1234

Teacher: Mr. Thomson

Date: 2018-11-08

Location

- ☐ Classroom
- ☐ Hallway
- ☐ Cafeteria

Minor and Major Behaviors

- ☐ Unprepared for class
- ☐ Inappropriate clothing
- ☐ Incomplete homework
- ☐ Fighting
- ☐ Inappropriate representation of school
- ☐ Weapons

Additional Notes

Send

Office Discipline Referral (ODR)



Screening Tool

Evaluate the Student according to the values of the Matrix of Expectations

Student: ABCD1234

Expectations

Respect for the Environment

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Responsibility

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Respect for others

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Submit

SWPBS Expectations as screening tool

- SWPBS Expectations as screening tool to identify Behavioural risk (Burke et al, 2014) using a 5 point likert scale 1 = never or almost never, 2 = rarely, 3 = sometimes, 4 = often, 5 = always or almost always
- Burke, M. D., Davis, J. L., Hagan-Burke, S., Lee, Y. H., & Fogarty, M. S. (2014). Using SWPBS expectations as a screening tool to predict behavioral risk in middle school. *Journal of Positive Behavior Interventions*, 16(1), 5-17.

Roles involved

Student:

- Logs in using a QR Code or a personal code
- Is able to check his personal scoreboard

Parent:

- Logs in using a QR Code or a personal code
- Is able to monitor his child's behavior at school





BASE

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