



## Evaluating a children's workshop

The workshop can be evaluated following the training evaluation model of D. Kirkpatrick. The first two levels in the model - Reaction, Learning can be used. To analyse these levels, questionnaires have been prepared taking in to account the children's ages.








1. Pre questionnaire 4-5 years old
2. Pre questionnaire 6-7 years old
3. Pre Interview guide
4. Observation guide
5. Post questionnaire 4-5 years old
6. Post questionnaire 6 -7 years old
7. Post Interview guide
8. Questionnaire for parents
9. Piloting survey

## Pre-Questionnaire for children – 4-5 years















Name: \_\_\_\_\_ Age: \_\_\_\_\_ Date: \_\_\_\_\_

*(to be filled by the teacher)*

*The teacher can show an image or example of the automata that the children will make, and ask them:*

|   |   |  |   |   |
|---|---|--|---|---|
| <p><i>Do you think it is interesting?</i></p> |   |   |   |   |
| <p><i>Do you think you can do it?</i></p>     |  |  |  |  |

## Pre Questionnaire for children –6-7 years

|  |   |   |   |
|--|---|---|---|
| Name: _____  |   | Date: _____   |   |
| I know a lot about mechanisms and moving toys.   |    |    |    |
| I think I am pretty good at constructing moving toys and mechanisms.                         |    |    |    |
| I think I am pretty good at maths.   |    |    |    |
| I think I am pretty good in at science.  |   |   |   |
| Moving toys and mechanisms are very interesting.   |  |  |  |
| Mathematics is very interesting.   |  |  |  |
| Science is very interesting.   |  |  |  |
| <i>Other statements can be added, taking in to account the learning goals you decide on.</i> |   |   |   |



## Pre-group interview with children

To be completed by the teacher or tutor

How many children participated?

What ages and gender?

How many teachers?

Questions suggested

Do you know about anything about moving toys and mechanisms?

Do you think moving toys and mechanisms are interesting?

Do you think you can make moving toys and mechanisms?

Do you think mathematics is interesting?

Do you think you are good at maths?

Do you think science is very interesting?

Do you think you are good at science?



## Observation guide

Observation guide for the children is designed for teachers or tutors to report on the different phases of the project

|   |
|---|
| Context and place                             |
| _____   |
| Date  |
| _____   |
| Teacher                                       |
| _____   |
| Participants – how many and ages              |
| _____   |
| Duration                                      |
| _____   |
| Scenario/Lesson                               |
| _____   |
| Automata used                                 |
| _____   |
| Learning outcomes                             |
| _____   |
| How the activity is related to the curriculum |
| _____   |

|   | Observer comments |
|---|-------------------|
| How did the project start (First steps). What did the teacher and the children do?  |                   |
| How many children were initially engaged in the task<br><input type="radio"/> All<br><input type="radio"/> More than half<br><input type="radio"/> Less than half<br><input type="radio"/> None |                   |
| Evidence and comments. Pictures and videos  |                   |
| How did the project continue. What did the teacher and the children do? Which questions were asked?   |                   |
| Prolonged engagement of the children in the project<br><input type="radio"/> All<br><input type="radio"/> More than half<br><input type="radio"/> Less than half<br><input type="radio"/> None  |                   |











|  |  |
|--|--|
| Evidence and comments. Pictures and videos   |  |
| How did the project end. What did the teacher and the children do?   |  |
| How many children developed the project task and reached a conclusion<br><input type="radio"/> All<br><input type="radio"/> More than half<br><input type="radio"/> Less than half<br><input type="radio"/> None   |  |
| Evidence and comments. Pictures and videos   |  |
| Where there variations on the initial plan   |  |
| Where there any critical incidents   |  |
| How many children enjoyed doing the project?<br><input type="radio"/> All<br><input type="radio"/> More than half<br><input type="radio"/> Less than half<br><input type="radio"/> None  |  |
| Evidence and comments. Pictures and videos   |  |
| What did children learn  |  |
| Evidence and comments. Pictures and videos   |  |
| What automata were made?<br><input type="radio"/> Were they copies of the automata presented at the beginning?<br><input type="radio"/> Were automata made based on the one presented but with some new ideas<br><input type="radio"/> Did any make completely new automata. |  |
| Evidence and comments. Pictures and videos   |  |
| Any other comments (positive, negative. Areas for improvement).  |  |































## Post Questionnaire for children – 4-5 years

Name: \_\_\_\_\_ Date: \_\_\_\_\_

*The teacher can show an image or an automata, and ask:*

|   |   |  |   |   |
|---|---|--|---|---|
| <p><i>Did you think it was interesting?</i></p> |   |   |   |   |
| <p><i>Did you think you did it well?</i></p>    |  |  |  |  |

## Post questionnaire for children –6-7 years

|  |   |   |   |
|--|---|---|---|
| Name: _____  |   | Date: _____   |   |
| I enjoyed doing this project very much.                        |    |    |    |
| I did this project because I wanted to use my own ideas        |    |    |    |
| I want to do this project again.                               |   |   |   |
| This project helped me learn about mechanisms and moving toys. |  |  |  |
| This project is helpful to learn about maths.                  |  |  |  |
| I now know a lot about mechanisms and moving toys.             |  |  |  |
| I am pretty good at making moving toys and mechanisms.         |  |  |  |
| I think I am pretty good at maths.                             |  |  |  |
| I think I am pretty good at science.                           |  |  |  |
| Moving toys and mechanisms are very interesting.               |  |  |  |



|   |  |
|---|--|
| <p>Maths is very interesting.</p>   |  |
| <p>Science is very interesting.</p>   |  |
| <p>I like this project because .....</p>  |  |
| <p>Because of this project I have learnt.....</p>                               |  |
| <p><i>Other statements can be added taking into account learning goals.</i></p> |  |



## Post group interview with children

*(to be completed by the teacher or tutor)*

Short characterization of the group and the process

How many children participated? What ages and gender?

How many teachers?

How did they work?

Did you enjoy the project?

Why?

Did you have any difficulties when doing the project?

What were they and how did you do to overcome the difficulties?

Did you do the project using your own ideas?

Can you give examples?

What did you learn from doing the project?

Can you give examples?

Do you now know about moving toys and mechanisms?

Do you think moving toys and mechanisms are interesting?

Do you think you can make moving toys and mechanisms?

Do you think maths is very interesting?

Are you good at maths?

Do you think science is very interesting?

Are you good at science?

What did you like most?

How can the project be improved?



## Questionnaire for parents

**About you** (Tell us a little about yourself, please)

Your age \_\_\_\_\_  Prefer not to say

Your gender \_\_\_\_\_  Prefer not to say

Please, rate the following statements, on a scale

( 1 = very bad; 5= excellent)

|   | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| How did you rate the workshop as a whole?   |   |   |   |   |   |
| How much was your curiosity stimulated when doing the project with your child/children? |   |   |   |   |   |
| Would you like to participate again in a similar project?                               |   |   |   |   |   |



## Piloting survey

Welcome to the AutoSTEM piloting survey

**About the children** (Tell us a little about the children you work with, please).

**How many children do you work with?** \_\_\_\_\_

**How old are the children? in years**

The youngest one \_\_\_\_\_ The oldest one \_\_\_\_\_

**Did you participate in a half-day seminar about AutoSTEM?**

(1)  yes (2)  no

### About the AutoSTEM workshop, seminar or training course

Tell us what you think about the AutoSTEM training after you tried the ideas with children

### What do you think about the AutoSTEM training?

*For the AutoSTEM workshop, seminar or training course. Please answer all items. For each item, please indicate how true the statement is for you.*

|   | Not at all true              | Not true                     | Partially true               | Somewhat true                | Quite true                   | True                         | Very true                    |
|---|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| I believe that this training could be of some value for me.   | (1) <input type="checkbox"/> | (2) <input type="checkbox"/> | (3) <input type="checkbox"/> | (4) <input type="checkbox"/> | (5) <input type="checkbox"/> | (6) <input type="checkbox"/> | (7) <input type="checkbox"/> |
| I felt like I was enjoying the training while I was participating.                                  | (1) <input type="checkbox"/> | (2) <input type="checkbox"/> | (3) <input type="checkbox"/> | (4) <input type="checkbox"/> | (5) <input type="checkbox"/> | (6) <input type="checkbox"/> | (7) <input type="checkbox"/> |
| I believe that this training is useful for working with STEM in kindergarten and/or primary school. | (1) <input type="checkbox"/> | (2) <input type="checkbox"/> | (3) <input type="checkbox"/> | (4) <input type="checkbox"/> | (5) <input type="checkbox"/> | (6) <input type="checkbox"/> | (7) <input type="checkbox"/> |
| This training was fun to do.  | (1) <input type="checkbox"/> | (2) <input type="checkbox"/> | (3) <input type="checkbox"/> | (4) <input type="checkbox"/> | (5) <input type="checkbox"/> | (6) <input type="checkbox"/> | (7) <input type="checkbox"/> |
| I think this training was important for my professional development.                                | (1) <input type="checkbox"/> | (2) <input type="checkbox"/> | (3) <input type="checkbox"/> | (4) <input type="checkbox"/> | (5) <input type="checkbox"/> | (6) <input type="checkbox"/> | (7) <input type="checkbox"/> |
| I enjoyed this training very much.  | (1) <input type="checkbox"/> | (2) <input type="checkbox"/> | (3) <input type="checkbox"/> | (4) <input type="checkbox"/> | (5) <input type="checkbox"/> | (6) <input type="checkbox"/> | (7) <input type="checkbox"/> |
| I think this is an important training.  | (1) <input type="checkbox"/> | (2) <input type="checkbox"/> | (3) <input type="checkbox"/> | (4) <input type="checkbox"/> | (5) <input type="checkbox"/> | (6) <input type="checkbox"/> | (7) <input type="checkbox"/> |



I thought this was a very boring training. (1)  (2)  (3)  (4)  (5)  (6)  (7)

It is possible that this training could improve my pedagogical practice. (1)  (2)  (3)  (4)  (5)  (6)  (7)

I thought this was a very interesting training. (1)  (2)  (3)  (4)  (5)  (6)  (7)

**Will you recommend this training to others?**

(1)  yes (2)  no

**Should we change anything?**

**About using AutoSTEM in kindergarten, preschool or primary school**

Tell us about your experience with using AutoSTEM with children, please.

**Over what time period did you do your AutoSTEM project?**

- (1)  one day
- (2)  less than a week
- (3)  about one week
- (4)  about two weeks
- (5)  about three weeks
- (6)  about a month
- (7)  more than a month

**Which automata did you use with the children in the workshop?**

- (1)  The jelly bird
- (2)  The snapping crocodile
- (3)  The stretching bunny
- (4)  The always come back machine
- (5)  The wind turbine race
- (6)  The drawbridge
- (7)  other: \_\_\_\_\_



### How have the children worked with automata?

Tick whether none, some, or all the children used it.

|   | none                         | some                         | almost all                   | all                          |
|---|------------------------------|------------------------------|------------------------------|------------------------------|
| The children explored how automata work.  | (1) <input type="checkbox"/> | (2) <input type="checkbox"/> | (3) <input type="checkbox"/> | (4) <input type="checkbox"/> |
| The children made their own automata by using the template.                                 | (1) <input type="checkbox"/> | (2) <input type="checkbox"/> | (3) <input type="checkbox"/> | (4) <input type="checkbox"/> |
| The children created their own automata by using their fantasy.                             | (1) <input type="checkbox"/> | (2) <input type="checkbox"/> | (3) <input type="checkbox"/> | (4) <input type="checkbox"/> |
| The children played with automata.  | (1) <input type="checkbox"/> | (2) <input type="checkbox"/> | (3) <input type="checkbox"/> | (4) <input type="checkbox"/> |
| The children are still playing with automata by themselves.                                 | (1) <input type="checkbox"/> | (2) <input type="checkbox"/> | (3) <input type="checkbox"/> | (4) <input type="checkbox"/> |
| The children took initiative to make new automata by themselves after the project finished. | (1) <input type="checkbox"/> | (2) <input type="checkbox"/> | (3) <input type="checkbox"/> | (4) <input type="checkbox"/> |

### Have you related automata to a story?

(1)  yes      (2)  no

### If yes, what story was used?

### Which STEM content have you used?

- (11)  Mathematics: space
- (12)  Mathematics: numbers
- (13)  Mathematics: shapes
- (14)  Mathematics: measuring
- (15)  Mathematics: \_\_\_\_\_
- (21)  Physics: mechanics
- (22)  Physics: energy
- (23)  Physics: astronomy
- (25)  Physics: optics



(26)  Physics: \_\_\_\_\_

(31)  Biology: animals

(32)  Biology: plants

(33)  Biology: ecology, environment

(34)  Biology: humans

(35)  Biology: \_\_\_\_\_

(50)  other: \_\_\_\_\_

**How have you worked with the jelly bird?<sup>1</sup>**

**How have you worked with the snapping crocodile?**

**How have you worked with the stretching bunny?**

**How have you worked with the always come back machine?**

**How have you worked with the wind turbine race?**

**How have you worked with the drawbridge?**

### What do you think the children thought about doing the AutoSTEM project?

For each of the following statements, please indicate how true the statement is for you.

|  | not at all<br>true           | not true                     | rather not<br>true           | somewhat<br>true             | rather true                  | true                         | very true                    |
|--|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| It was the children's choice to participate.                                 | (1) <input type="checkbox"/> | (2) <input type="checkbox"/> | (3) <input type="checkbox"/> | (4) <input type="checkbox"/> | (5) <input type="checkbox"/> | (6) <input type="checkbox"/> | (7) <input type="checkbox"/> |
| The children are pretty good at this.  | (1) <input type="checkbox"/> | (2) <input type="checkbox"/> | (3) <input type="checkbox"/> | (4) <input type="checkbox"/> | (5) <input type="checkbox"/> | (6) <input type="checkbox"/> | (7) <input type="checkbox"/> |
| The children found it very interesting.                                      | (1) <input type="checkbox"/> | (2) <input type="checkbox"/> | (3) <input type="checkbox"/> | (4) <input type="checkbox"/> | (5) <input type="checkbox"/> | (6) <input type="checkbox"/> | (7) <input type="checkbox"/> |
| After doing this activity for awhile, the children felt pretty competent.    | (1) <input type="checkbox"/> | (2) <input type="checkbox"/> | (3) <input type="checkbox"/> | (4) <input type="checkbox"/> | (5) <input type="checkbox"/> | (6) <input type="checkbox"/> | (7) <input type="checkbox"/> |
| Doing the activity was fun for the children.                                 | (1) <input type="checkbox"/> | (2) <input type="checkbox"/> | (3) <input type="checkbox"/> | (4) <input type="checkbox"/> | (5) <input type="checkbox"/> | (6) <input type="checkbox"/> | (7) <input type="checkbox"/> |
| The children enjoyed doing the activity very much.                           | (1) <input type="checkbox"/> | (2) <input type="checkbox"/> | (3) <input type="checkbox"/> | (4) <input type="checkbox"/> | (5) <input type="checkbox"/> | (6) <input type="checkbox"/> | (7) <input type="checkbox"/> |
| The children did not really have a choice about doing the activity.          | (1) <input type="checkbox"/> | (2) <input type="checkbox"/> | (3) <input type="checkbox"/> | (4) <input type="checkbox"/> | (5) <input type="checkbox"/> | (6) <input type="checkbox"/> | (7) <input type="checkbox"/> |
| This was an activity that the children couldn't do very well.                | (1) <input type="checkbox"/> | (2) <input type="checkbox"/> | (3) <input type="checkbox"/> | (4) <input type="checkbox"/> | (5) <input type="checkbox"/> | (6) <input type="checkbox"/> | (7) <input type="checkbox"/> |
| The children thought the activity was very boring.                           | (1) <input type="checkbox"/> | (2) <input type="checkbox"/> | (3) <input type="checkbox"/> | (4) <input type="checkbox"/> | (5) <input type="checkbox"/> | (6) <input type="checkbox"/> | (7) <input type="checkbox"/> |
| The children felt that they were doing what they wanted during the activity. | (1) <input type="checkbox"/> | (2) <input type="checkbox"/> | (3) <input type="checkbox"/> | (4) <input type="checkbox"/> | (5) <input type="checkbox"/> | (6) <input type="checkbox"/> | (7) <input type="checkbox"/> |
| The children felt pretty skilled at doing this.                              | (1) <input type="checkbox"/> | (2) <input type="checkbox"/> | (3) <input type="checkbox"/> | (4) <input type="checkbox"/> | (5) <input type="checkbox"/> | (6) <input type="checkbox"/> | (7) <input type="checkbox"/> |
| The children had to do the activity.   | (1) <input type="checkbox"/> | (2) <input type="checkbox"/> | (3) <input type="checkbox"/> | (4) <input type="checkbox"/> | (5) <input type="checkbox"/> | (6) <input type="checkbox"/> | (7) <input type="checkbox"/> |
| Doing this activity increased childrens motivation to learn about Stem.      | (1) <input type="checkbox"/> | (2) <input type="checkbox"/> | (3) <input type="checkbox"/> | (4) <input type="checkbox"/> | (5) <input type="checkbox"/> | (6) <input type="checkbox"/> | (7) <input type="checkbox"/> |





The activity increased the children's STEM learning. (1)  (2)  (3)  (4)  (5)  (6)  (7)

What did the children learn when doing the activity?

Which competences did children develop when doing the activity?

Is there anything else you would like to tell us? Suggestions for using the automata in

class

**Thank you very much for answering our questions.**