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Training templates to work with trainers and teachers



AutoSTEM

AutoSTEM /2018-1-PT01-KA201-047499

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Introduction

The training template for local partners to work with teachers proposes **a set of resources** to support **the planning, implementation and evaluation of teacher training workshops** of AutoSTEM Erasmus project.

In this scope, the AutoSTEM project produced a set of resources in order to equip teachers of pre-school and primary school with tools and stimuli to render STEM subject appealing through using the mechanical and mathematical aspects of automata,

This training template proposes a general pathway to empower teachers and educators to design, to plan and to implement a tailored learning pathway directed to young children making use of the tools Automata Toys. In this scope, it proposes a structure for a teacher workshop and brings together resources that can be used in the workshop.

Resources and templates proposed must be considered as general guides. Changes can be introduced taken into account the specificity of the context.



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1. Principles for a teacher workshop

During teacher workshops, teachers and educators experience some of the activities they will implement later. Also, some of the resources used for implementing teacher training are similar to ones to be used in piloting. This evidences an **Isomorphism** between teacher training and teaching.

Teachers and educators are challenged to construct automata and experience the process - **Experience based**

Teachers and educators are also challenged to reflect on their own motivation and learning while participating in a workshop, as well as to explore and suggest how to link automata to their own teaching practice and curriculum.

The teacher workshop is then implemented in a action – reflection perspective aiming to promote **Reflective and innovative practices** and research based practices.



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2. Planning and implementing a teacher workshop

2.1. Teacher workshop structure

Following a proposal for the structure of a workshop with teachers, approx.-4 h is presented below.

- Introduction to the AutoSTEM project and main ideas.
- Observation of different automata.
- Presentation of suggestions on how to work with automata in class in an interdisciplinary approach.
- The teachers will build their own, and they can modify them with their own ideas.
- Teachers present their automata and their own ideas.
- Presentation of piloting resources
- Evaluation of the workshop

2.2. Template for planning a workshop

Planning a teacher workshop (Appendix 1)



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2.3. Advertising the workshop

A flyer for advertising a workshop shall include logos of the project, Erasmus+, partners, associated partners, project reference and disclaimer (Appendix 2).

2.4. Presenting the project

A PowerPoint for presenting the project and its aims (Appendix 3).

The PowerPoint shall be adapted to the workshop.

2.5. Workshop attendance sheet

When participating in a workshop, teachers shall sign an attendance sheet (Appendix 4).

2.6. Informed consent form to use photos and videos taken during the workshop

It is necessary to ask participants in a workshop consent to use photos and videos taken during the workshop (Appendix 5).

2.7. Other resources

The Step by Step Guide developed in the project presents information about the aims of the project, some key concepts and use of automata in education. It can be considered for preparing the teachers workshop and shall also be present to teachers as a resource for the piloting <https://www.autostem.info/step-by-step-guide/>

Guides about how to construct some automata and how to use them in class have been developed <https://www.autostem.info/construction-instruction-pedagogical-guidelines/>



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3. Teacher workshop evaluation

The workshop is evaluated following the multinivel training evaluation model proposed by D. Kirkpatrick, that involve four main levels - Reaction, Learning, Behavior, and Results.

3.1. Questionnaire

To do the evaluation, a questionnaire can be used, to be filled by teachers and educators participating in teacher workshops. It may used before and after the workshop or only after (Appendix 6).

3.2. Observation guide

An observation guide should also be used (Appendix 7).

4. Reporting the teacher workshop

To report the workshop a template to be filled by project partner or teacher can be used (Appendix 8)

5. Certificates of participation

Certificates of participation can be found in Appendix 9.



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Appendices

Appendix 1 - Template for planning a workshop

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Lesson	
Date	
Teacher	
Automata used	
Target group	
Context	
How the activity is related to the curriculum	
Learning outcomes	
Content	
What to do	
Resources	
Assessment	



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Appendix 2– Flyer for advertising workshop



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Information about the workshop and photos



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Appendix 3 - AutoSTEM PowerPoint

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AutoSTEM

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Automata are fascinating mechanical toys, small Kinetic Art sculptures.

An Automata might be seen as a syncretism between engineering, cultural awareness and artistic expression.

As other manual artifacts, Automata are child tailored communication device and can be defined as "story telling mechanical objects". Automata have fascinated children over the ages and today there are museums just for automata.

Due to the combination of the narrative and mechanical part, Automata have several possibilities of educational use.

- Besides being much appreciated by the children, they are easy to realize in the classroom.
- Automata's motion can be built according to the pupils' age.
- When planning and constructing an automata, children can develop different competences as problem solving, group work, creativity as well as exploring science school content.

STEM

Engineering
Technology
Mathematics
Science

Observing automata

Jelly bird

Other steps

- Projecting their own automata
- Experiencing STEM content while constructing the automata
- Playing with the automata
- Reflecting on the work developed

The talking elephant



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19	20	21
22	23	24
25	26	27
28	29	30
31	32	33
34	35	36



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Appendix 4 – Workshop attendance sheet



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Workshop Attendance List

AutoSTEM 2018-1-PT01-KA201-047499

This is to confirm that the following persons have attended an AutoSTEM workshop at
xxxx, xx xxxx 20xx

Name	Institution	Signature



QueenMaudUniversityCollege
OF EARLY CHILDHOOD EDUCATION



FACULDADE
DE PSICOLOGIA E DE
CIENCIAS DA EDUCACAO
UNIVERSIDADE D
COIMBRA



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Appendix 5 – Informed consent form to use images



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I agree that photos and videos taken during the workshop AutoSTEM that took place at XXXXXXXXX are published in the project website or other related with the project dissemination as well as in reports and publications also related with the project

Name	Institution	Signature



FACULDADE
DE PSICOLOGIA E DE
CIÊNCIAS DA EDUCAÇÃO
UNIVERSIDADE D
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Appendix 6 – Questionnaire for a teacher workshop evaluation

Welcome to the evaluation of the AutoSTEM training

You start your answer by clicking on the arrow down on the right.

You move back and forward through the questionnaire by using the arrow buttons that are at the bottom of each page. You can at any time go back and change an earlier answer.

Thank you very much that you spent time answering this survey.

About you

Tell us a little about yourself, please

Your age _____ Prefer not to say

Your gender

- (1) Female
- (2) Male
- (3) other
- (0) Prefer not to say

How long have you worked in Early Childhood Education? : _____

Your highest level of education?

- (1) MA in Early Childhood Education or as a teacher or something similar
- (2) BA as preschool, kindergarten or primary school teacher or something similar
- (3) Certificate as child and youth worker or something similar
- (4) accomplished secondary school
- (5) not accomplished secondary school
- (6) other education: _____

Which position do you have in the kindergarten?

- (1) Head teacher
- (2) Pedagogical leader or teacher
- (3) Child and youth worker
- (4) Kindergarten, preschool or school assistant
- (5) Primary teacher _____
- (6) other position: _____



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About the AutoSTEM workshop, seminar or training course

Tell us what you think about the AutoSTEM training.

How did you perceive the AutoSTEM training?

The following items concern your experience with 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	rather not true	somewh at true	rather 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 feel like I am enjoying the training while I am 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 is 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 is 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 enjoy 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 think this is a very boring 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"/>
It is possible that this training could improve my pedagogical practice.	(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 a very interesting 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"/>
The training was developed considering my ideas/I believe I had some choice about doing this 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"/>



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I think I am pretty good at this activity. (1) (2) (3) (4) (5) (6) (7)

I put a lot of effort into this. (1) (2) (3) (4) (5) (6) (7)

I did not feel nervous at all while doing this. (1) (2) (3) (4) (5) (6) (7)

Using automata will improve my student learning about science (1) (2) (3) (4) (5) (6) (7)

Using automata will improve my student motivation about science (1) (2) (3) (4) (5) (6) (7)

	Before the training						After the training				
	1=Not at all true	2	3	4	5=very true		1=Not at all true	2	3	4	5=very true
I know about automata											
I know how to use automata in class											
I know about mechanisms and movement											
I am confident about how to use automata in class											



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What did you learn?

Which competences does the activity promote?

Will you use this in your class?

(1) yes

(2) no

Why?

Suggestions for using in class

Will you recommend this training to others?

(1) yes

(2) no

What in the training went particularly well?

What could have been better?



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Was there something you did not like?

Is there anything else you want to tell us?

Thank you very much that you answered our questions.

Click on the arrow down on the right to complete the survey.



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Appendix 7 – Observation guide

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 activity start. First steps.	
Involvement in the task <input type="radio"/> All the participants were involved <input type="radio"/> More than half where involved <input type="radio"/> Less than half of the participants were involved <input type="radio"/> None of the participants were involved	
Evidences and comments. Pictures and videos	
How did the activity continue.	
Engament in the task <input type="radio"/> All the participants were engaged <input type="radio"/> More than half where engaged <input type="radio"/> Less than half of the participants were engaged <input type="radio"/> None of the participants were engaged	
Evidences and comments. Pictures and videos	



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How did the session end.	
Task development and conclusion <input type="radio"/> All the participants developed the task <input type="radio"/> More than half developed the task <input type="radio"/> Less than half of the children developed the task <input type="radio"/> None of the participants developed the task	
Evidences and comments. Pictures and videos	
Variations of the initial plan	
Critical incidents	
Satisfaction <input type="radio"/> All the participants enjoyed doing the task <input type="radio"/> More than half enjoyed doing the task <input type="radio"/> Less than half of the children enjoyed doing the task <input type="radio"/> None of the participants enjoyed doing the task	
Evidences and comments. Pictures and videos	
What were participants main learning outcomes <input type="radio"/>	
Evidences and comments. Pictures and videos	



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Automata developed <ul style="list-style-type: none">○ Copy of automata presented○ Inspired in automata developed but with new ideas○ New proposals.	
Evidences and comments. Pictures and videos	
Critical incidents	
SWOT analysis and other comments	



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Appendix 8 – Teacher workshop report form

To be filled by project partners when implementing a teacher workshop.

  Co-funded by the Erasmus+ Programme of the European Union Teacher workshop report
Context, local and date
Teacher
Participants – how many and ages
Duration
Automata used
Learning outcomes
Structure of the activity and processes. How the activity is related to the curriculum. Participants engagement
Products /automata produced
Participants satisfaction
Participants learning outcomes
Evidences and comments. Pictures and videos



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Appendix 9 – Certificate of participation in an AutoSTEM workshop

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.....**Certificate**.....

*This is to certify that _____ participated in a workshop of the Erasmus+ Project **Automata for STEM** nr. 2018-1-PT01-KA201-047499.*

AutoSTEM
with a total of **XXXXX** hours.

→XXXX.XX.XXXXX.2019 → →

.....

     

   



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