



# Pestalozzi

Strengthening education for  
democracy (STED)

Basic democratic values at and after  
computer science lessons

by

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## Basic democratic values at and after computer science lessons

### Brief description

Main issue that the training unit addresses is the crucial role of democratic competences in our societies.

This training unit aims to support teachers to use ICT (Information and communications technology) tools in their lessons to promote basic democratic values. Proposed activities help to create an inclusive environment for all students, focusing on reflection about self and others, analysis of our concepts, pre-conceptions and opinions in order to communicate and co-operate sensibly, reduce misunderstandings and reach common goals.

The ideal number of participants is between 20 and 30.

### Expected outcomes

- ✓ Participants will develop/acquire their knowledge related to competences for democratic culture.
- ✓ Participants will develop their knowledge and critical understanding of the self.
- ✓ Participants will develop their skills of listening and observing.
- ✓ Participants will understand the potential for using ICT in education for democracy.

## Activities

	Duration	Methods used
Activity 1	▶60 minutes	Individual work, pair sharing, plenary debriefing.
Activity 2	▶75 minutes	Individual work, group work, plenary presentations (in word rotation).
Activity 3: Debriefing /evaluation	▶45 minutes	Individual work, pair sharing, plenary debriefing.

## Background and context

I prepare prospective and in-service teachers to introduce Educational Robotics to schools in our region; therefore the activities are related to robots. Teachers also can use different ICT (Information and communications technology) tools in their lessons to promote basic democratic values. During activities participants will explore both democratic issues and ICT potential in this unit and their importance in the daily life of youth. The use of ICT tools facilitates the promotion of active participation and interest.

This training unit was originally piloted with 20 students and in-service teachers during my usual curriculum at the Omsk State Pedagogical University within the course «Educational Robotics» as part of the Pestalozzi Programme Module series “Strengthening education for democracy” in November-December 2016. Sometimes it was complicated to talk with participants about democratic culture, because they do not know much about it. In accordance to that I made some corrections of activities, because participants need some initial knowledge to develop such competencies as valuing democracy, human rights, equality and the rule of law, etc.

## Activity 1: Knowing yourself and knowing the other

Duration: 60 min

### Expected outcome

- ✓ Participants will get to know each other
- ✓ Activity will build a foundation for team work

### Methods/ techniques used

- ✓ Individual work.
- ✓ Pair sharing.
- ✓ Plenary debriefing.

### Resources

- ✓ A4 paper – one per participant (or computer, one per participant).
- ✓ Copy of competences model – one per participant.

### Practical arrangements

- ✓ Room should be set up so the group can sit in a circle and move freely (during pair sharing).

### Procedure

#### Step 1 (5 min)

Have the whole group sit down in a circle.

- ✓ Ask participants to think and list parts of robots. Possible parts – screens, screws, wheels, belts, circuits, antennas, etc. Each participant drafts out a robot on A4 paper.

#### Step 2 (15 min)

- ✓ Ask participants to analyse 20 competences, included in the model (appendix 1).

- ✓ Ask participants to choose 4 competences (one from every slot – values, attitudes, skills, and knowledge), which, to their opinion, they are very good at. Participants have to think about real life examples, where they successfully used the competence.
- ✓ Ask participants to write down those 4 competences on separate parts of a robot (in the way they want). Participants also have to write key words of personal stories next to each competence.

### Step 3 (20 min)

- ✓ Ask participants to make pairs. They have 5 minutes to speak about the values they chose for themselves, and share with each other in a pair their personal stories.
- ✓ When the 5 minutes are over, facilitator gives a signal and participants make new pairs. Now they have another 5 minutes to share competences and stories about attitudes.
- ✓ In 5 minutes participants again make new pairs, and speak about skills. In next 5 minutes – about competences and stories of knowledge and understanding.

### Step 4 - Debriefing (20 min)

Debriefing in plenary session may be based on some of the following questions:

- ✓ Was it difficult to find examples of successful practicing of selected competences? Why?
- ✓ How did you feel thinking about concrete examples from your own behaviour?
- ✓ How did you feel listening for stories of other people? Why?
- ✓ Have you learned something from shared stories of other people? Can you give an example?
- ✓ Would you use this in your classroom and how would you adapt it?

### Tips for trainers

- ✓ If you want to shorten step 1, you can give a printed version of a robot (appendix 2), and ask participants only to add parts they feel are missing.

- ✓ If you prefer this task to be more creative, you can invite participants to use more different materials for creating robot - coloured paper, photos, foil, plastic wrap and also some craft supplies, wires, beads, Lego details, ribbon, etc.
- ✓ Another option may be to do this activity using computers or other tools.
- ✓ **If participants know each other well, they can start working in pairs from step 2. You can ask them to draw not personal robots, but a robot of their pair friend.** They have to think about competences of all 4 slots their pair friend is good at, and give examples of concrete cases to illustrate it. *It's important to stress that this activity is speaking about each other strengths and the competences your pair friend has.*
- ✓ In step 3 pair friends share only the robots they made about each other.
- ✓ In this version of the activity debriefing questions may be : was it difficult to find competences your pair friend is good at ? Why? How did you feel listening to the competences and examples your pair friend selected for you? Why? Was something surprising for you? What and why? Do you agree with his/her opinion?

## Activity 2: Robots help to understand people

This activity is based on the activity "The Teleporting Robot" from Queen Mary University of London.

Duration : 75 min.

### Expected outcome

Participants will:

- ✓ develop analytical and critical thinking skills
- ✓ learn a playful method to engage students in analysis of brain confusion phenomenon
- ✓ reflect on their personal experienced of brain tricking
- ✓ analyse the model of competencies

### Methods/ techniques used

- ✓ Individual work.
- ✓ Group work.
- ✓ Plenary presentations (in word rotation).

### Resources

- Computer with projector.
- One big version of a puzzle or one teleporting robot puzzle for a group of 4 participants (appendix 3).
- Model of competencies (appendix 1).

### Practical arrangements

- ✓ Arrange the room so that participants can work in groups of 4.

### Procedure

#### Step 1 (15 min)

- ✓ Introduce a simple jigsaw with a picture of robots on the projector screen - appendix 3, or you can find it here:  
<http://www.cs4fn.org/magic/downloads/teleportingrobot.pdf>

With the participants, count them – there are 17 robots. Take one big version of the puzzle, shuffle six pieces of the jigsaw, and then put them back together. Or you can give puzzles to groups of participants (one group made of 4 participants), and ask them to do the same task. You and the participants count the robots again. It is the same jigsaw as before but only 16 robots remain. Number 17 has vanished leaving no trace!

You can find video there :

<http://www.cs4fn.org/magic/teleportingrobotvideo.php>

The secret: it is not one robot that disappears, it is that they all squash up but in a way that is impossible to see even when you know.

The puzzle is designed to be complicated in a way that people cannot see what is happening, even it is right before us.

#### Step 2 (15 min)

- ✓ The puzzle activity shows how easily the human brain is confused. The same applies to the situation when we try to understand people, or to set relations, or to solve some inter-personal issues. Media also use a lot of “brain confusing” tricks.

Invite participants to individually reflect about it more. Ask them to remember situations (one or more), real life similar experiences they had « brain confusing » situations. Ask them to describe (in written form) how the situation happened, and what caused it, or what was the main reason for the confusion.

#### Step 3 (15 min)

- ✓ Form groups of 4 (if they were not formed yet in step 1). Ask participants to share their stories in a group.

#### Step 4 - Debriefing (30 min)

- ✓ Ask participants to look at model of competencies individually and choose a few competencies this activity helps to develop (5 min.)
- ✓ Ask participants to share their chosen competencies in a group, shortly explaining their choices. Group has to make a summary of all choices (10 min).
- ✓ Ask groups to present their choices in word rotation (first group tells one



competence, second group one, third group one, etc. When the circle is finished, first group starts again with one competence, second group continues, etc). There is no need to repeat the same competences. The presentation is over when no groups had competences left (15 min.).

Tips for trainers

- ✓ It is possible to explain other focuses of this activity (for example, computational thinking, human-computer interaction, fake news, etc.)

## Activity 3: Evaluation

Duration : 45 min.

### Expected outcome

- ✓ Participants will reflect on their emotions and cognitive processes of this workshop.

### Methods/ techniques used

- ✓ Individual work.
- ✓ Pair sharing.
- ✓ Debriefing in plenary.

### Resources

- ✓ Computer for every participant (or at least one computer for two participants). Participants also may use their mobile phones or other electronic devices.

### Practical arrangements

- ✓ Arrange the room so that participants can move freely during pair work and sit or stand in a circle during final debriefing.

### Procedure

#### Step 1 (10 min)

- ✓ Ask participants to find a picture on the internet which would describe their emotions and feelings during this workshop.
- ✓ Ask participants to find a picture on internet, which would describe their cognitive (thinking) processes he/she had during this workshop.
- Ask participants to find a picture on internet, which would be the answer to the question “What will I take home with me from this workshop?”

### Step 2 (25 min)

- ✓ Divide participants into 2 groups. Group 1 will be presenters, group 2 – listeners.
- ✓ Listeners go to presenters (one to one). Presenters have 3-5 minutes to show his/her picture and explain how their picture exemplifies or explains all 3 debriefing questions.
- ✓ The teacher makes a sound, and listeners find another presenter to listen to. This procedure should be repeated till 3 presenters have spoken to 3 listeners.
- ✓ Then participants change roles – listeners become presenters, presenters become listeners. Again the procedure should be repeated till 3 presenters speak to 3 listeners.

### Step 3 - Debriefing (10 min)

- ✓ Ask participants to sit or stand in a circle (or, if not possible, to sit in a way that people would face each other).
- ✓ Give each participant a possibility to say one last sentence about the impact of this workshop. You may ask them to formulate a sentence in this form «This workshop for me was like ... ». It should be an activity of «one sentence », other participants are asked not to ask any questions and not to comment, only to listen.

### Tips for trainers

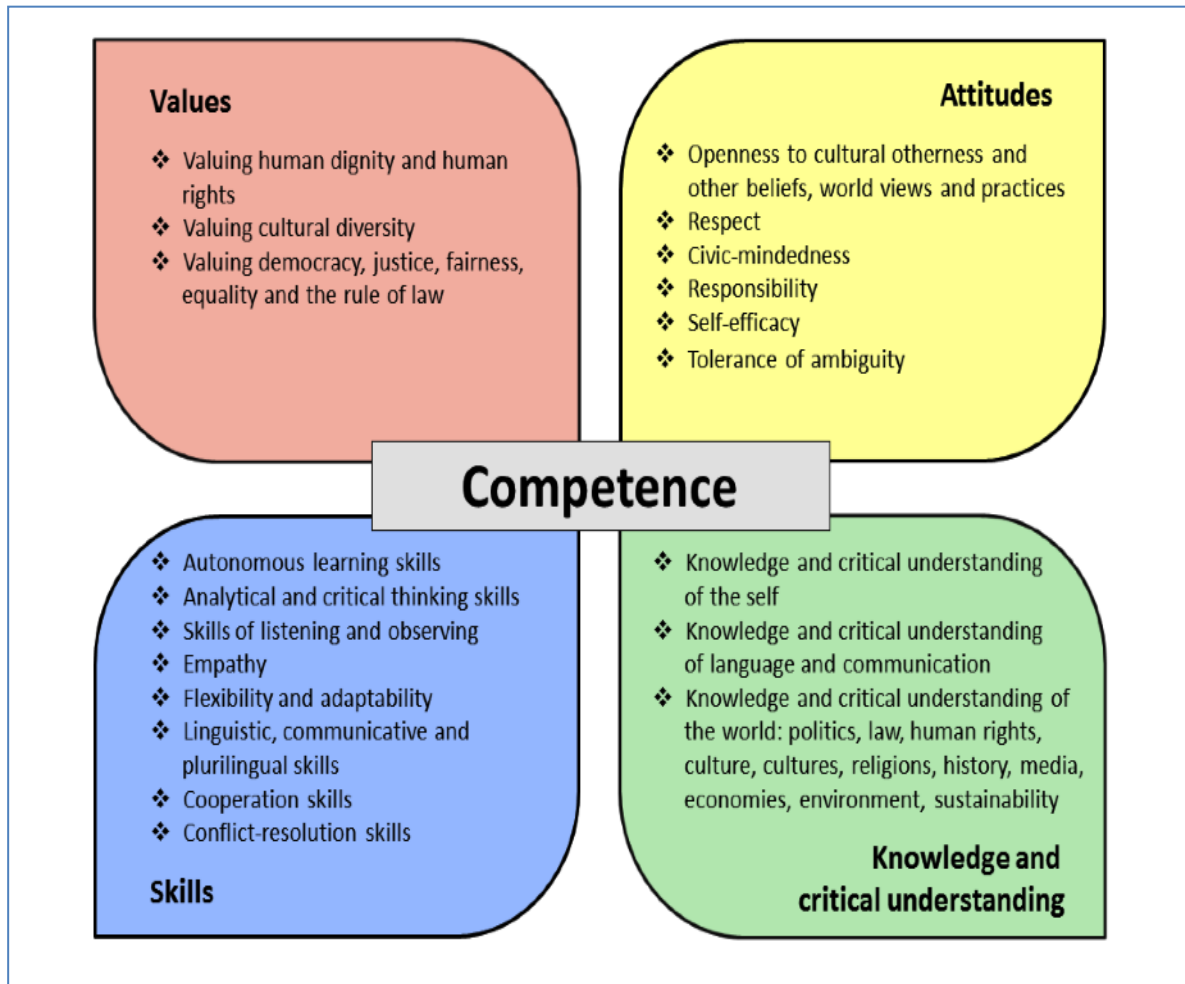
- ✓ Make sure that during the presentations there are no presenters without listeners (avoid grouping next to some presenters).
- ✓ Teacher or facilitator has to visit every presenter (not to listen for full presentation, but to get the general impression).

## References

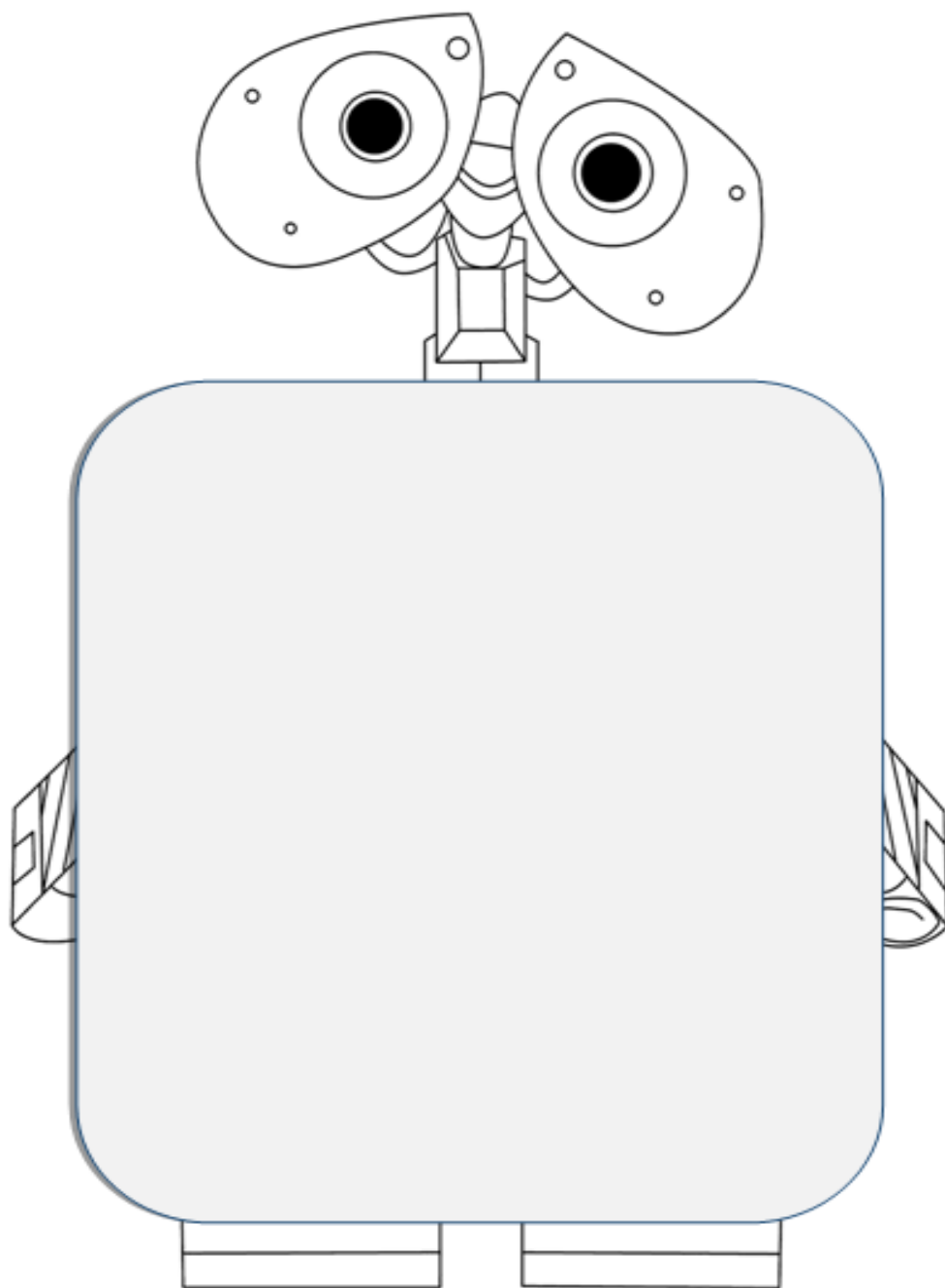
1. TASKs for democracy. 60 activities to learn and assess transversal attitudes, skills and knowledge (Council of Europe) - [link](#)
2. Activity "The Teleporting Robot" of Queen Mary University of London - [link](#)
3. Activity "Robot Ice-breaker (STEM) First week of school" by The Joy of Teaching // Teachers pay teachers project - [link](#)
4. Competences for democratic culture. Living together as equals in culturally diverse democratic societies (Council of Europe) - [link](#)

## Appendices

### Appendix 1



Appendix 2



Appendix 3

