



Pestalozzi

Strengthening education for democracy (STED)
Reading Democracy in Numbers

by

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Reading Democracy in Numbers

Brief description

Citizens depend on the use of different sources of information and these have an influence on forming opinions. This unit throws light on the role that numbers, statistics and graphical representations play in the opinion forming process.

Target group

Type of training
International group of students who are teacher trainees

Expected outcomes

Through this training unit the participants are expected to develop:

- ✓ Critical thinking and critical use of information sources
- ✓ Self-reflection and self-assessment of one's position in a democratic society
- ✓ Tolerance of ambiguity
- ✓ Competent citizenship, raising awareness and interest in the democratic society that we live in
- ✓ Knowledge and critical understanding of the world with a focus on politics, media and culture
- ✓ Knowledge and critical understanding of language and communication
- ✓ Valuing democracy
- ✓ Communicative skills
- ✓ Co-operation skills
- ✓ Skills in reading and interpreting sources of information
- ✓ Analytical and critical thinking
- ✓ An openness to world views

Activities

	Duration	Methods used
Activity 1: Warm-up - exchanging ideas in a team, debate on questions posed Self-reflection - How do I use the Media: Questionnaire 1	▶ 30 minutes	Debate, self-reflection
Activity 2: Interaction	▶ 60 minutes	Station work, teamwork
Activity 3: Self-reflection 2 - Questionnaire 2	▶ 20 minutes	Individual work
Activity 4: Debriefing/evaluation	▶ 30 minutes	Whole group

Background and context

This training unit was designed for 12 trainees (an international group of university students who are going to be teachers in primary schools throughout Europe). The training unit is also suitable for larger groups as the training material works best for groups with more than eight students.

Teacher trainees will have a chance to reflect on their habits in the use of the media. They will also discover that numbers are not always as reliable as they seem. Critical thinking is necessary in the interpretation of data and graphical representations. Finally, they will understand that the critical use of information and sources is vital in empowering citizens and exercising their rights in a democratic and open society.

Activity 1: Self-reflection Part 1 – How do I use the Media?

Duration: 30 min

Expected outcome

The trainees are expected to

- ✓ reflect on their personal use of the media
- ✓ interpret the interaction of citizens with the media
- ✓ develop certain competences such as the knowledge and critical understanding of language and communication, knowledge and critical understanding of the world with a focus on media, politics and culture
- ✓ clarify their thoughts between the different types of media
- ✓ reflect on the credibility of sources: How can graphs and figures change our views?
- ✓ apply their critical thinking on the power of figures and numbers

Methods/techniques used

- ✓ Debate
- ✓ Self-reflection
- ✓ Reading and taking notes

Resources

- ✓ Appendix 1 - Exchange of opinions
- ✓ Appendix 2 - Template of Questionnaire 1

Practical arrangements

- ✓ Prepare copies of Appendix 1 and Appendix 2

Procedure

Step 1

- ✓ Trainer informs trainees that they will be doing a training session on the political dimension of statistics and numbers.
- ✓ Trainer informs trainees that the initial step is to find out individually what our positions are.

Step 2

- ✓ Trainer puts trainees in four groups of three and asks them to debate on the questions posed (See material Appendix 1). Trainer allows a time limit of 15 mins.

Step 3

- ✓ Trainer asks teacher trainees to fill in the questionnaire individually. If necessary, trainer provides clarification of expressions and phrases used in the text, e.g. the differences between public and private TV.

Step 4

- ✓ Debriefing and reflection is carried out as a whole group. Knowing now a little more about personal involvement in a democratic society and the use of information sources, the group of trainees is ready to start the main session on “reading democracy in numbers”.

Tips for trainers

- ✓ Tell trainees that the questionnaire will remain with them all the time. It will not be used by other people. Its sole purpose is self-reflection.

Activity 2: Reading democracy in numbers – What do they tell? What do they hide?

Duration: 60 min

Expected outcome

The trainees will

- ✓ Develop skills in reading and interpreting information
- ✓ receive training on critical thinking, critical approach towards sources of information, reading information that contains numbers, information that is represented in graphs
- ✓ develop competences such as listening and observing skills
- ✓ have more tolerance of ambiguity especially in a fact orientated discipline like mathematics
- ✓ reflect on information within a team
- ✓ enhance their cooperation skills and communication skills

Methods/techniques used

- ✓ teamwork
- ✓ communication within a team
- ✓ presenting ideas to a changing audience

Resources

- ✓ Material for the 3 “working stations” (appendices 3,4,5)

Practical arrangements

- ✓ Arrange for three “working stations” with each having a different focus: Station 1 – Translating text into numbers
Station 2 – Sticky pies: Pie charts - what they tell and what the actual numbers tell us
Station 3 – Different forms of representation and how they can influence the information they carry

Procedure

Step 1 (15 min)

- ✓ Divide the 12 trainees into two even groups – the “Blues” and the “Reds”.
- ✓ Then form three teams of 4 for the three working stations. Each team consists of 2 “Blues” and 2 “Reds”.
- ✓ Allow time for the teams to do the tasks of their working station.

Step 2 (40 min)

- ✓ The Blues STAY / the Reds MOVE clockwise to the next station
- ✓ The Blues who have stayed explain their work and their findings to Reds (the newcomers).
- ✓ The Blues MOVE anti-clockwise
- ✓ The Reds who have stayed with the station explain to the Blues (the newcomers) what they have learnt about their respective station.
- ✓ The teams move till Reds and Blues have travelled through all stations.

Step 3 (5 min)

Debriefing

- ✓ After the work with actual examples, trainees are ready again for a meta-level and the next task.

Tips for trainers

- ✓ Give the initial two groups a name, a colour, a number etc. This avoids confusion.
- ✓ Move around the teams in the initial phase and only interact if trainees make mathematical errors. Correct these mathematical errors before the interaction with other teams starts.

Activity 3: Self-reflection Part 2

Duration: 20 min

<p>Expected outcome</p> <p>Trainees will</p> <ul style="list-style-type: none"> ✓ reflect again on their personal use of the media ✓ practice self-assessment, critical thinking, self-observation, critical approach to one's use of sources of information ✓ receive training on awareness, competent citizenship and intercultural interaction ✓ develop skills of listening and observing
<p>Methods/techniques used</p> <ul style="list-style-type: none"> ✓ Individual work, ✓ Reflection within the training team
<p>Resources</p> <ul style="list-style-type: none"> ✓ Questionnaire 2 – Wrapping up (Appendix 6)
<p>Practical arrangements</p> <ul style="list-style-type: none"> ✓ Go back to a whole group session similar to the initial individual work in Activity 1. Trainees fill in Questionnaire 2. Then, follows reflection work in the plenary.
<p>Procedure</p> <p>Step 1 (10 min)</p> <ul style="list-style-type: none"> ✓ Individual work – filling in Questionnaire 2 and drawing comparisons with answers in Questionnaire 1 <p>Step 2 (10 min)</p> <p>Whole group work</p> <ul style="list-style-type: none"> ✓ reflection on differences in how the two questionnaires have been answered ✓ intercommunication, conclusions and putting learning results of the training session into actual words

Tips for trainers

- ✓ Trainer gives trainees room for discussion and reflection within the whole group.
- ✓ Trainer throws light on the cultural differences and background of the multinational group.
- ✓ Activity 3 as a whole is designed as debriefing and reflection on the whole training process.

Activity 4: Evaluation and impact assessment

Duration: 30 min

Expected outcome

The trainees will

- ✓ interpret their answers in Questionnaire 1 and Questionnaire 2
- ✓ address change in their answers and give reasons for their change in opinion
- ✓ reflect on their views as a citizen and how these can be influenced by the media
- ✓ reflect on the impact of the training session

Methods/techniques used

- ✓ Whole group and individual work
- ✓ Focus on “Station work”
- ✓ Interaction in different teams
- ✓ Interaction in the base group

Resources

- ✓ Questionnaire 1 and 2, Material for the Stations (appendix 2 and 6)

Procedure

Step 1 (10 min)

- ✓ Participants check Questionnaires 1 and 2 for answers that have changed.
- ✓ The trainer operates only in the background giving the least possible amount of instruction. Trainees are given enough freedom to make discoveries at their own pace and time.

Step 2 - Debriefing (20 min)

- ✓ The session is designed to trigger critical thinking and to support interaction in teams and larger groups.
- ✓ Whole group discussion and comparison of answers that have changed.

Tips for trainers

- ✓ Participants are asked to fill in a questionnaire at the very beginning of the session and after the training in the stations. The questionnaires are a vital part of the training material and the differences in the answers before and after the training help trainees reflect on the impact of the training session.
- ✓ The data and visual material of true sources will be outdated soon, thus this training is using material that does not hint at any actual events.

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Appendices

Appendix 1:

Warm-up Exchanging

Opinions

Discuss in your group:

Are you interested in politics? Do you feel politics influence your life? To what extent are you keeping yourself informed about politics? Which sources of information are there and do you use?

Appendix 2:

Questionnaire

How often do you inform yourself about politics?

- _____ once a week
- _____ more than once a week
- _____ less than once a week

What are your preferred sources of information? Choose 5 which you use most and rank them! (1 being the most preferred to 5 being least preferred.)

- _____ social media
- _____ website of your national news organisation
- _____ website of international news organisation (source from outside your country)
- _____ TV / Radio (public)
- _____ TV / Radio (private station)
- _____ TV / Radio (from outside your country)
- _____ newspaper (local)
- _____ newspaper (nationwide)
- _____ newspaper from abroad
- _____ other print media

From the 5 chosen sources above – for how many do you know the ownership or stakeholders?

_____ (Give a number: 1 to 5)

Credibility – Which sources do you trust most? Choose 5 and rank them! (1 being the most preferred to 5 being least preferred.)

- ___ social media
- ___ social media that source information according to your user profile
- ___ website of your national news organisation
- ___ website of international news organisation (source from outside your country)
- ___ TV/Radio (public)
- ___ TV/Radio (private station)
- ___ TV/Radio (from outside your country)
- ___ newspaper (local)
- ___ newspaper (nationwide)
- ___ newspaper from abroad
- ___ other print media

When you watch a news report or read an article, what makes you trust the content? Tick 4!¹

- ___ long report with lots of detail
 - ___ short report
 - ___ favourite source of information
 - ___ you have information about the authorship
 - ___ lots of numbers and percentages are part of the report
 - ___ lots of graphs, pie charts, bar charts to show the data
 - ___ a friend you trust has told you or “liked” it
 - ___ a scientist with an impressive title is mentioned as the author
- Reading the numbers - Interpreting texts using numbers

¹ Cf. Norris (2010). 78-83.

Appendix 3:

STATION 1

Explain with simple numeric examples – translate into actual numbers.

Prices were cut by ten per cent and then again by another ten per cent.²

It rose by the power to two./It doubled.

The percentages were in the tens.

Figures tripled/quadrupled.

Percentages were in the one-digit category.³

² Cf. Timischl (2012). 313-330.

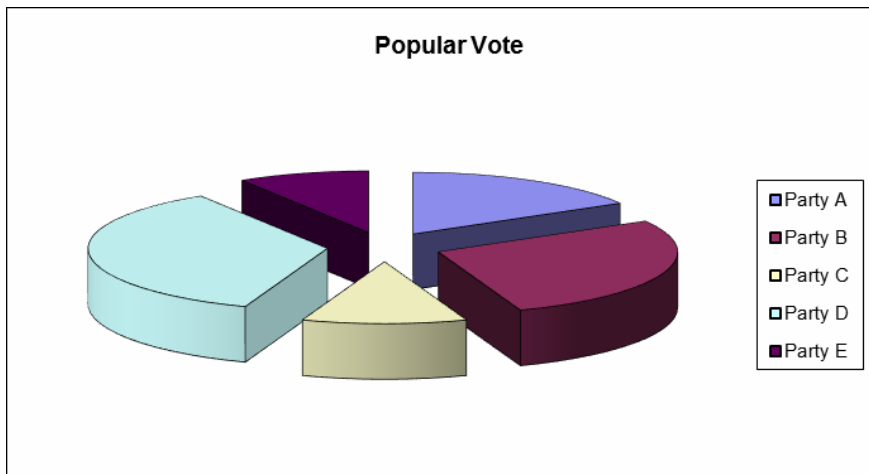
³ Cf. Fuchs (2014). 11-12.

Appendix 4:
STATION 2

Sticky Pies

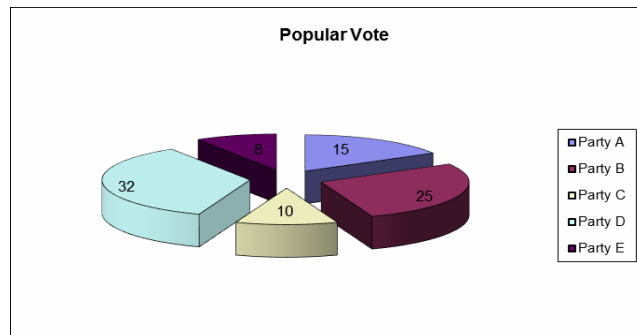
Reading 3 dimensional
graphs

Party	Popular vote in %
Party A	15
Party B	25
Party C	10
Party D	32
Party E	8



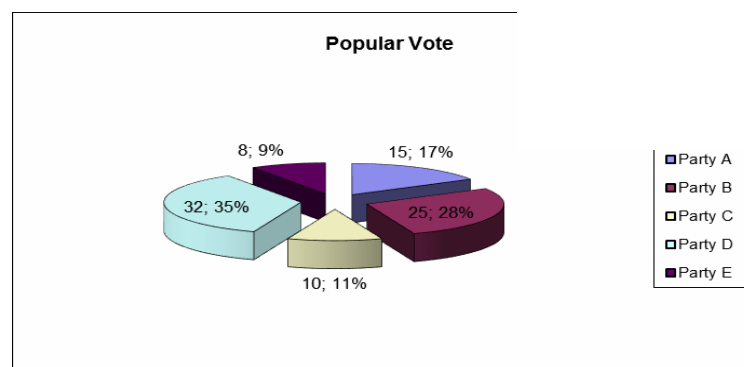
The graph is always the same but how have the additional data changed its meaning?
What can you read into the graph?

What is tricky?



Anything wrong with the numbers?

Why equals 8 suddenly 9%?

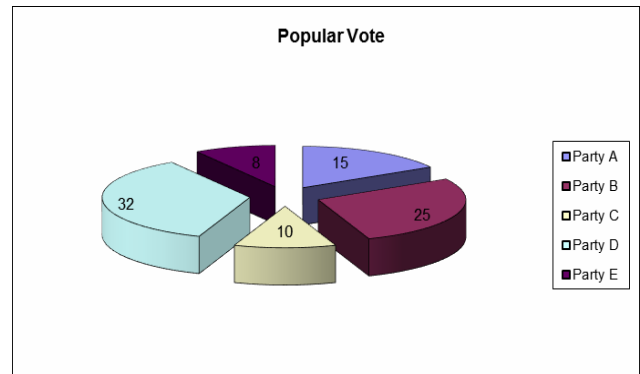


Appendix 5:

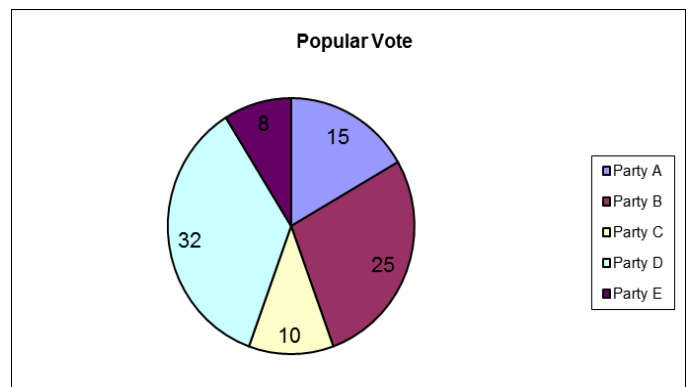
STATION 3

Reading Numbers in Graphs

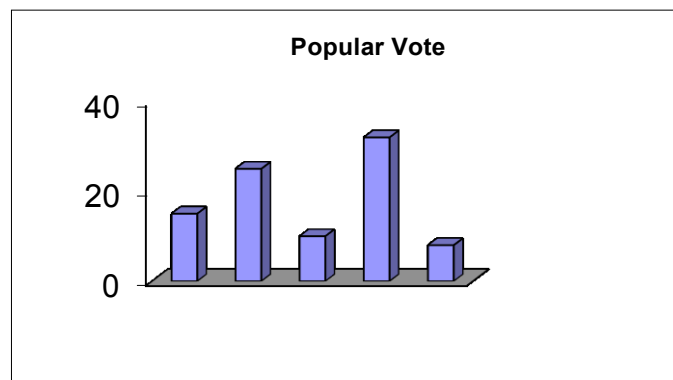
Party	Popular vote in %
Party A	15
Party B	25
Party C	10
Party D	32
Party E	8



Compare the 3D and 2D representation
 - What has changed?
 - What can you read into the graph?



Pros and cons about bar charts? Anything wrong with the numbers?



Appendix 6

Questionnaire 2 - Wrapping up

Credibility – Which sources do you trust most? Choose 5 and rank them!

- _____ social media
- _____ social media that source information according to your user profile
- _____ website of your national news organisation
- _____ website of international news organisation (source from outside your country)
- _____ TV / Radio (public)
- _____ TV/Radio (private station)
- _____ TV/Radio (from outside your country)
- _____ newspaper (local)
- _____ newspaper (nationwide)
- _____ newspaper from abroad
- _____ other print media

What has changed for you after the exercise?

When you watch a news report or read an article, what makes you trust the content? Tick 4!

- _____ long report with lots of detail
- _____ short report
- _____ favourite source of information
- _____ you have information about the authorship
- _____ lots of numbers and percentages are part of the report
- _____ lots of graphs, pie charts, bar charts to show the data
- _____ a friend you trust has told you or “liked” it
- _____ a scientist with an impressive title is mentioned as the author

What has changed for you after the exercise?

Credibility of numbers/statistics/graphs

Which criteria are you checking?

_____ source

_____ do the actual maths

_____ have a closer look at the figures and numbers

_____ 3D or 2D

_____ colours in graphs

_____ check connection with text content