



# **Storytelling with Ozobots –**

**A public research lesson about young learners' programming with Ozobots**

# #176: Public research lesson

Lesson study carried out in 2019/20 in 2 cycles and two public research lessons.

## Lesson Study-Team



Sabine Apfler



Iris Giefing



Claudia Mewald



Karin Tengler

# Storytelling with Ozobots –

A public research lesson about young learners' programming with Ozobots

## Goals

- Introduction to computer science education at primary level
- Become familiar with the robot Ozobot and its programming
- Cross-curricular introduction to computational thinking

# Context & theoretical framework

- Computer science education will be anchored in next Austrian primary school curriculum (BMBWF, 2020)
- Introduction of computer science education
  - foundation for problem-solving thinking skills (Wing, 2006)
  - promotion of learning and innovation skills (Muuß-Merholz, 2019)

4 Cs :

**Collaboration**

**Communication**

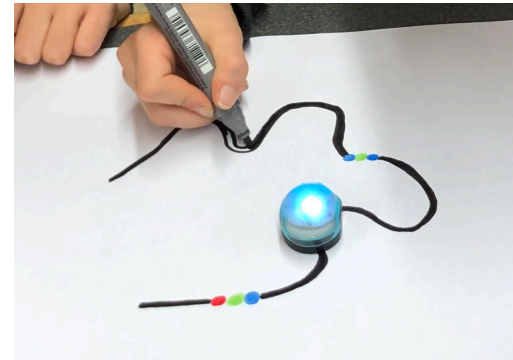
**Creativity**

**Critical thinking**



# Description of the research lesson

- Introduction
- Gaining initial experience in programming
- Elaboration of the fairy tale on the basis of a riddle
- Graphic representation and programming of the fairy tales plot
- Presentation

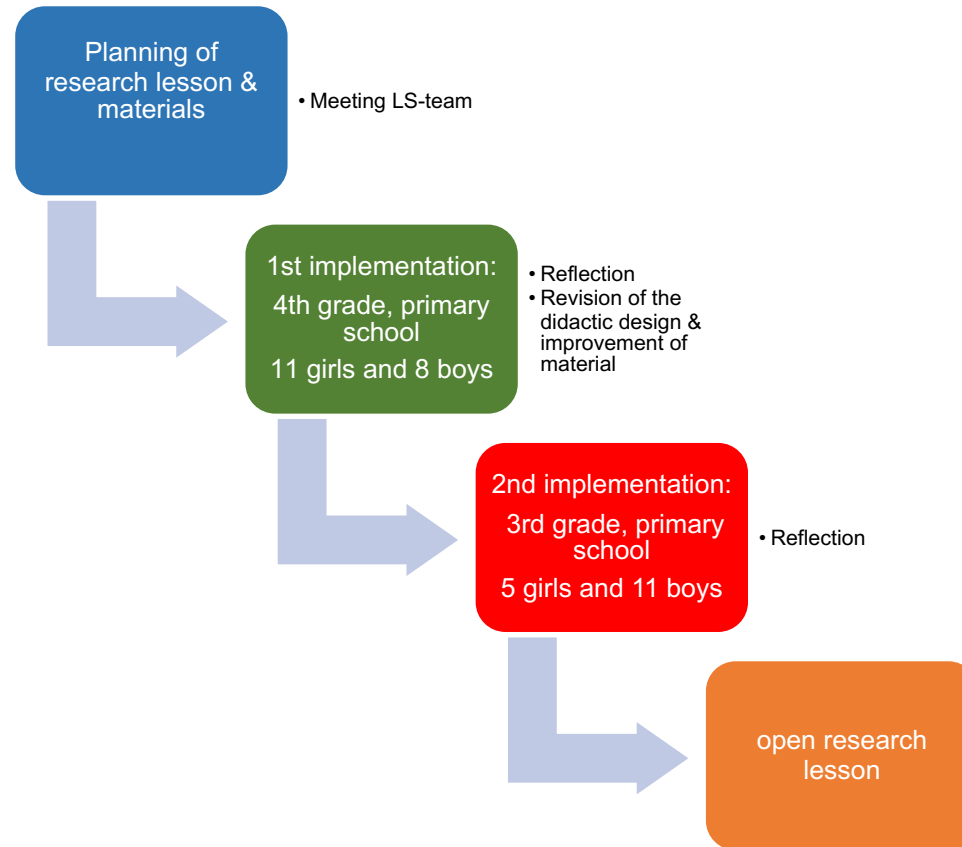


# Learning goals

The pupils ....

- learn how to program the robot Ozobot
- can use programming commands correctly
- can draw the fairy tale sequence and programme the robot Ozobots according to the storyline
- can convert (encode) the plot into a programming language
- can decode the plot and retell the story using the graphical representation and programming commands

# LS Design



# Dissemination

- **2 public research lessons**
- **papers**

Tengler, K., Sabitzer, B. & Kastner-Hauler, O. (2020). First programming with Ozobots – a creative approach to early computer science in primary schools. INTED2020 Proceedings, pp. 5156-5162.

Tengler, K. (2020). Klein, kreativ, Ozobot: Förderung von Kreativität und informatischem Denken durch spielerisches Programmieren. *R&E-SOURCE*.

- **lesson study page on our website**

<https://www.ph-noe.ac.at/de/lessonstudy.html>

# Outcomes

Outcomes of interviews with teachers, students and LS team members

Great interest in learning programming

Enthusiasm and motivation

Good cooperation

Constructive discussions

Development of new tasks

No difference in programming skills in terms of gender

# Observation tasks

- How do students perform during their first programming experiences?
- Based on the plot of a fairy tale, can students use simple programming commands in a meaningful way?
- Can gender differences in the approach and selection of codes be identified?
- What creative solutions do pupils find in programming the story?

# Contact

[karin.tengler@ph-noe.ac.at](mailto:karin.tengler@ph-noe.ac.at)

[claudia.mewald@ph-noe.ac.at](mailto:claudia.mewald@ph-noe.ac.at)



PÄDAGOGISCHE HOCHSCHULE  
NIEDERÖSTERREICH

# References

BMBWF (2020). Digitale Grundbildung. <https://www.bmbwf.gv.at/Themen/schule/zrp/dibi/dgb.html>

Muuß-Merholz, J. (2019). Die 4K-Skills: Was meint Kreativität, kritisches Denken, Kollaboration, Kommunikation. <https://www.joeran.de/die-4k-skills-was-meint-kreativitaet-kritisches-denken-kollaboration-kommunikation/>, 2019.

Tengler, K., Sabitzer, B. & Kastner-Hauler, O. (2020). First programming with Ozobots – a creative approach to early computer science in primary schools. INTED2020 Proceedings, pp. 5156-5162.

Tengler, K. (2020). Klein, kreativ, Ozobot: Förderung von Kreativität und informatischem Denken durch spielerisches Programmieren. *R&E-SOURCE*.

Wing, J. (2006). Computational thinking. In: Communications of the Acm 49 (3) S. 33-35. [https://www.microsoft.com/en-us/research/wp-content/uploads/2012/08/Jeanette\\_Wing.pdf](https://www.microsoft.com/en-us/research/wp-content/uploads/2012/08/Jeanette_Wing.pdf)