

ERASMUS

TEACHER

TRAINING

2021



Perspectives  
in the Natural Sciences

GOETHESCHULE ESSEN - GERMANY

## TRANSDIGITAL PERSPECTIVES

As the world becomes increasingly digital, both students and teachers face a number of unprecedented challenges. The key question is how schools may develop new learning and teaching methods to integrate digital media technologies across the curriculum while sustaining a balanced focus on the cognitive, affective, social and creative competencies needed by young Europeans in the 21st century.

In accordance with the 'European Digital Competence Framework' and the 'European Framework for Digitally Competent Educational Organisations', the goal of this project is to create an innovative, 'transdigital' learning and teaching approach based on the conviction that effective digital-age learning does not make isolated and ineffective use of digital devices and applications, but considers them as part of a holistic educational concept "to prepare students for a fulfilling and productive life in which their skills and attributes are constantly challenged, developed and applied as part of their lifelong learning" (J. Hare, Holistic Education).

The teacher training sessions on "Transdigital Perspectives in the Sciences" are part of the Erasmus Plus project "Transdigital Education. Developing Key Competencies through Holistic Learning and Teaching in the Digital Age". The project is meant to foster a broad and sophisticated set of skills, competences and personal qualities in secondary school students between the age of 14 and 18 - and their teachers. The impact of the project will be most visible in the close international collaboration and the professional exchange of best practice among the project schools from Denmark, Germany, Lithuania, Poland and Spain, which will strengthen the awareness for how digital and traditional methods and media may intertwine to meet individual learners' needs.

## Preparation

Science teachers from each project school will reflect on their different teaching approaches:

- What methods and materials are predominantly used?
- What role does digital learning and teaching play in the sciences?
- Are first steps already being taken towards a holistic learning and teaching approach? If so, how? If not, what obstacles do/did the science department face?
- How important are interdisciplinary bonds between different subject areas?
- How important is open learning?
- Does the school foster learning outside the classroom by collaborating with after-school clubs, environmental organisations etc.?

Teachers will present their reflections on their schools' different science profiles in **INTERACTIVE MINDMAPS** which are to be shown as a means of introduction to the other participants of the staff training.

## SCHEDULE

### Monday, 6<sup>th</sup> September 2021

Travel Day

### Tuesday, 7<sup>th</sup> September 2021

Workshop Day 1

10:00 – 10:30 **Welcome Reception with Coffee and Tea** (Principal's Office)

Dr. Nicola Haas (Principal)

10:30 – 11:15 **Guided Tour of the School and the School Garden**

Susanne Schnell (Vice-Principal)

11:15 – 12:30 **Workshop I: Introductory Teacher Presentations** (Room 36)

Teachers present their schools' science profiles and their reflections on their own teaching with the help of the interactive mindmaps prepared.

12:30 – 13:30 Lunch

13:30 – 14:15 Trip to the Essen Gruga Park

Karmen Heup, Arie Boergen

14:15 – 17:15 **Workshop II: The Essen Gruga Park as a Place of Extracurricular Learning**

Bernhard Demel, School of Nature / Environment Education Centre Essen

Please wear sturdy shoes and weatherproof clothing!

### Wednesday, 8<sup>th</sup> September 2021

Workshop Day 2

10:00 – 12:30 **Workshop III: Learning in the Science Classroom - Experiences and Best Practice**

Teachers discuss

- a) how to foster holistic learning and teaching in the sciences and how to assess it;
- b) how to promote interdisciplinary collaboration with other subject teachers;
- c) the role of open learning and learning outside the classroom;
- d) the use of tools for creating online quizzes, such as "Quizlet", 'Kahoot', 'Socrative' etc.

12:30 – 13:30 Lunch

13:35 – 15:00 **Workshop IV: Digital Learning and Teaching - Experiences and Best Practice**

Open to all teachers at Goetheschule Essen

Teachers discuss

- different approaches to digital learning and teaching;
- the opportunities and limitations of digital media in the classroom;
- exchange best practice with regards to digital learning and teaching.

15:00 – 17:00 Optional: Walk to Lake Baldeney

Martina Féaux de Lacroix

### Thursday, 9<sup>th</sup> September 2021

Workshop Day 3

10.05 – 10.35 **Keynote: ESD at school. "Schule der Zukunft" as a Tool for Implementing Education for Sustainable Development in North Rhine-Westphalia"**

Keynote Speaker: Jennifer Kappmeier-Klenk, Country Coordinator of 'School of the Future'

10.35 – 10.50 The UN SDGs in Practice. Questions and Answers

10.50 – 11:05 Achieving the UN SDGs. Advice to Schools

11:05 – 11:35 Coffee Break

11:35 – 12:30 **Workshop V: Transdigital Teaching in the Sciences**

Teachers compile a list of teaching tips based on their findings during Day 1 and 2.

12.30– 13:30 Lunch

13:30 – 15:00 **Workshop VI: Transdigital Learning in the Sciences**

Teachers ask themselves how an awareness of 'transdigital' learning in the sciences might be promoted with the help of a quiz for educators, teacher trainees, teachers, interested parents etc. They create such a quiz with one of the digital tools/platforms tested on Day 2.

15.20 – 16:30 Optional: Class Visit

IB Biology, Katharina Fußhöller

19:00 Teachers' Dinner

### Friday, 10<sup>th</sup> September 2021

Travel Day

**Follow-up Activities:**

The Science teachers will meet with their faculties, their heads of school and heads of departments. The goal is for each school to realise at least one MINI-PROJECT/TEACHING UNIT which contributes to

- a) an intensification of the collaboration between different subjects or
- b) an expanded cooperation with external institutions or
- c) the embedding of transdigital scientific learning.

Examples could be joint projects between the Natural Sciences, the forming of a new after-school club or cross-departmental collaborations, e.g. in CLIL (Content and Language Integrated Learning) courses which teach science through the medium of a foreign language. Schools may put ideas into practice which best suit their current prerequisites and needs, but the activities must be documented online to demonstrate the quality of cooperation arrangements and ensure further virtual exchange between the project schools.





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GOETHESCHULE ESSEN - GERMANY  
RUSCHENSTR. 1, 45133 ESSEN  
EMAIL: [INFO@GOETHESCHULE-ESSEN.DE](mailto:INFO@GOETHESCHULE-ESSEN.DE)