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"WATER YOU DOING?": A WATER AWARENESS INITIATIVE WITHIN THE ERASMUS+ PROJECT GIRLS

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ABSTRACT. This paper describes the implementation of the Service-Learning project "Water you doing?", carried out at Colegio Marista Champagnat in Salamanca (Spain). Embedded within the European Erasmus+ GIRLS Project (Generation for Innovation, Resilience, Leadership and Sustainability), this initiative aimed to raise awareness about the responsible use of water and to foster empathy toward affected communities by insanity water, drawing inspiration from previous experiences and international collaborations. In this project, after an initial session to motivate and train teachers, students from across the school conduct Physics experiments with other pupils in different grades to help them understand the importance of water from a scientific perspective. The paper outlines the activities carried out during *Water Week*, the monitoring indicators, and the impact evaluation, highlighting the effectiveness of awareness-raising actions and the importance of sustained efforts in promoting sustainable habits.

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1. INTRODUCTION AND PROJECT CONTEXT

Colegio Marista Champagnat de Salamanca [1], established in 1933, belongs to a long-standing educational institution, founded in 1817. It is a Catholic school with a strong Marist educational tradition, which seeks to provide its students with a comprehensive education through an updated pedagogical model and a firm commitment to values and society. It offers education ranging from Kinder-garden to High School. It currently has a teaching community made up of 86 teachers and 1136 students. All teachers and approximately 1000 students participated in "Water you doing?" project.

"Water you doing?" is a Service-Learning (SL) initiative that represents an evolution and integration of previous experiences, both local and international. After an initial session to motivate and train teachers, students from across the school conduct experiments with other pupils in different grades to help them understand the importance of water from a scientific

perspective. The initial inspiration came from a meeting held in Mexico in June 2024 (Fig. 1), where a valuable exchange took place with the Universidad Vasco de Quiroga [2] and other GIRLS European project partners [3]. A particularly meaningful collaboration was established with the Mexican association “Da una Esperanza de Vida” (Give a Hope for Life), which supports kidney patients in Ciudad Hidalgo, in the state of Michoacán [4].



FIGURE 1. This image captures two moments from the meeting between the European Erasmus+ GIRLS project partners and the “Give a Hope for Life” Association in Ciudad Hidalgo, in the state of Michoacán, Mexico.

Additionally, the project builds on the results of a previous initiative at Colegio Maristas during the 2022 – 2023 academic year, titled “We Are Water”, which focused on the responsible use of water and culminated in an open house (Fig. 2). That initiative proved effective, leading to a measurable reduction in water consumption during its implementation.

The current project is also closely aligned with the school’s strategic plan, in which three of its five strategic goals -student agency in learning, sustainability, and leadership- are directly connected to the aims of the Erasmus+ GIRLS project. For its implementation and development, the school worked in close collaboration with several internal teams, including *Eco2social*, *InnovaPlus* (innovation and professional development), and the *Social Action Team*, whose efforts directly support awareness campaigns and causes such as that of “Da una Esperanza de Vida”.

This internal collaboration was further strengthened by the external support of the University of Salamanca (USAL), which provided expert guidance and training in the scientific aspects of the experiments carried out. This contribution was essential for the design and implementation of the practical dimension of the project, which formed the core of the educational experience led by the students.

The project’s objectives and theoretical foundation are outlined below, along with the implementation of the activities carried out during *Water Week*, as well as the results obtained and their evaluation, and the conclusions drawn from the experience.

2. OBJECTIVES AND THEORETICAL FOUNDATIONS OF THE PROJECT

The “Water you doing?” project pursues several key objectives, all aligned with the promotion of Sustainable Development Goal (SDG) 6: Clean Water and Sanitation [5]. The main objectives include:

- Promoting the care and conservation of water resources.



Jornada de puertas abiertas

General

eco2social, Maristas Sonríe, me gusta mi cole, proyecto educativo, puertas abiertas, somos agua

10. Feb. 2023



A lo largo del día de hoy hemos tenido una jornada de puertas abiertas, donde varias familias se han acercado a conocer nuestro colegio y nuestro proyecto educativo. Durante la visita han podido recorrer nuestras aulas y pasillos que están ambientadas en torno al cuidado del agua. Gracias a todas las familias que habéis compartido con nosotros esta jornada de puertas abiertas. ¡Esperamos veros pronto por nuestro colegio y nuestras aulas!



FIGURE 2. Some images from the Colegio Maristas during *Water Week*, where classrooms and hallways were decorated with water conservation themes. Project developed during the 2022 – 2023 academic year, titled "We Are Water" (https://maristassalamanca.es/etiquetas_noticias/somos-agua/).

- Encouraging students to adopt more sustainable water consumption habits.
- Raising awareness about the responsible use of water and its vital importance.
- Fostering empathy and engagement with the association "Da una Esperanza de Vida", by highlighting the human dimension of water access and the need for responsible usage.

The relevance of this project lies in the recognition that, although awareness-raising actions can be effective in the short term, their positive outcomes tend not to last unless education around water use is ongoing and consistent [6, 7]. This underscores the need for patience and persistence in cultivating sustainable, long-term behavioral change among students.

The initiative is based on the project-based learning methodology Service-Learning. As it is known SL experiences allow students to engage in their community by developing helpful activities, while increasing their motivation and acquiring skills and knowledge specific to their studies [8]. Another methodological principle is active learning, as everyone involved, teachers

and students, will carry out water experiments. And, as mentioned before, students from different grades are responsible for presenting the experiences at other educational levels. In this case, the SL methodology is provided by students to peers at different levels in the same school.

3. IMPLEMENTATION AND ACTIVITIES OF *Water Week*

The project was comprehensively implemented through the event *Water Week*, held in commemoration of *World Water Day* on March 22, 2025. This initiative actively involved the entire educational community. The preparation phase was meticulous and included the organization of student groups and a weekly calendar of structured activities. The key phases of implementation included are detailed below (Fig. 3).

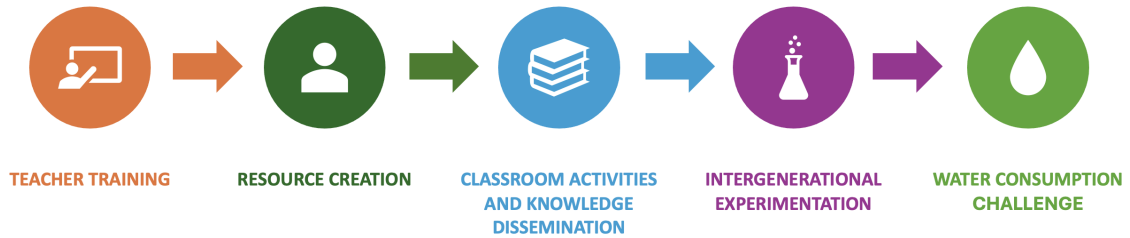


FIGURE 3. Diagram showing the phases for project implementation “Water you doing?”.

- **Teacher Training:** Teachers participated in a special training session focused on awareness, contextual understanding, and practical preparation for *Water Week*. During the session, they experienced first-hand the scientific activities that students would later carry out (Fig. 4). A set of nine physics experiments was carefully prepared to help the entire educational community understand the importance of water from a scientific perspective (Fig. 5). Teachers were provided with a sheet with a detailed script for each of the experiences (Fig. 6). This training was led by the *InnovaPlus team* and, specifically, by the teachers who represent the school in the European Erasmus+ GIRLS Project in collaboration with the University of Salamanca.
- **Resource Creation:** The school collaborated with the *Eco2social team* to create a presentation dynamic for the school’s morning reflection time, “Amanecer Marista”, with a focus on raising awareness for *World Water Day*.
- **Classroom Activities and Knowledge Dissemination:** From March 17th to 21st, classrooms were transformed into learning laboratories. During *Water Week*, students-guided by their tutors- engaged in scientific experiments and prepared presentations to share with other student groups.
- **Intergenerational Experimentation:** A central activity involved students from 5th grade of Primary Education to 10th grade (4° E.S.O.) presenting a selected experiment, guided by older or younger peers. These sessions brought together all educational stages, sharing “science” across generations (Fig. 7). The methodology promoted hands-on learning and the development of key competences such as leadership, communication, public speaking, and teamwork. In order to carry out the presentation of all experiments across the entire school within a single hour, a carefully structured organizational model was implemented. Considering that each year group in Primary and Secondary Education was divided into



FIGURE 4. Some images from the teacher training session for *Water Week*: a) Room prepared for the arrival of the teachers; b) a moment from the presentation; c) detail of the explanation of one of the experiences and d) material prepared so that all teachers can carry out the experiences.

three classes of approximately 25 to 30 students, the activity was structured into three 20-minute rotations, totaling one hour. In each rotation, two year groups (i.e., six classes) were involved. Each class was divided into five small groups, resulting in 30 small groups per rotation. These groups were then distributed throughout the school to present their assigned experiment to other classes (Fig. 8). same structure was repeated during the second and third rotations. This system enabled all Infant and Primary classes up to Grade 4 to engage with three different experiments, while students from Grade 5 of Primary through to Secondary had the opportunity to present one experiment and observe two others, ensuring both active participation and peer-to-peer learning within a limited time frame.

- **Water Consumption Challenge:** Students were invited to calculate the amount of water wasted during showers, particularly while waiting for the water to reach the desired temperature. They collected and measured this water, and then calculated monthly and annual waste at the individual, classroom, and whole-school levels (approx. 1200 students). To support the activity, data on the local water treatment cost in Salamanca (1.30 €/m³) was provided to help students make real-life mathematical estimations.

4. RESULTS AND IMPACT EVALUATION

The evaluation of the project was primarily conducted using a “Target-based evaluation” (a graphic self-assessment tool, see figure 9), which allowed students to reflect on four key aspects: their initial motivation, changes in their water usage habits (awareness), their interest in the experiments presented, and the process of preparing and presenting their experiment. Student feedback on these Target-based evaluation reflected a highly positive experience. Some examples of their comments include:



Experiments



VNIVERSIDAD
D SALAMANCA



1. Magic
2. Ship Captain
3. Breathing life
4. And it doesn't fall!
5. Spin non-stop
6. Descartes' Diver
7. Water garden
8. Underwater World
9. Giant pump



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FIGURE 5. Index of the nine experiments carried out to understand the importance of water from a scientific perspective, throughout the "Water you doing?" project.

- "We loved being part of this experience".
- "We really enjoyed learning with our Secondary School classmates. We want to do it again! Thank you and congratulations on the initiative".
- Several students praised how well-prepared the experiments were and how the explanations were adapted to the younger children's understanding.
- Others explicitly acknowledged the impact on their awareness: "This *Water Week* really helped people understand how to use water better in their daily lives".

In addition to this qualitative assessment, the project also relied on a quantitative indicator: the water consumption ratio (cubic meters of water consumed / total number of students). It is important to note that this data refers specifically to the water consumption recorded for the school building. An extended data series provides a more comprehensive view of the project's longitudinal impact is collected in Table 1. A decrease in water consumption per student in a year has been observed over the last five years: from $3.31 \text{ m}^3/\text{student}$ in the 2019 – 2020 academic year to $2.08 \text{ m}^3/\text{student}$ in the 2024 – 2025 academic year.

While the ratio remained below or close to the targets between 2020 and 2023, the sharp increase in the 2023–2024 academic year initially raised concerns. Further research revealed that the spike was caused by a significant water leak on school premises. The anomaly in consumption allowed the maintenance team to identify and repair the issue, avoiding long-term inefficiencies. As such, the 2023 – 2024 data point should be interpreted as atypical and not indicative of the project's effectiveness. The strong return to reduced consumption levels in 2024 – 2025 with $2.08 \text{ (m}^3/\text{student)}$ per year, well below the target, $2.29 \text{ (m}^3/\text{student)}$ per year, provides compelling evidence of the project's success in promoting sustainable habits. It underscores the effectiveness

Breathing life

Have you ever wanted to bring your drawings to life and get them moving?

Goal

Observe how a substance less dense than another "floats" on it.

Material

- A white ceramic dinner plate
- A chalkboard marker
- A small bottle of water
- Water



Experimental method

Make sure the plate is dry and draw a picture with the marker.
The drawing can be whatever you want, for example, animals, numbers, a house or a tree. For example, several small fish.
After making the drawings, let it dry a little (approx. 10 seconds) and add the water slowly from the edge of the plate until you cover the drawing(s).

Scientific Basis

The ink in these markers is made up of an oily silicone polymer, color, and alcohol, so it doesn't stick to the bottom of the plate. When the alcohol evaporates and we add water, it slides under the drawing and makes it float.

The drawings do not break easily when floating due to the bonding strength of the color and polymer.

Why do they float? Because these inks are not soluble in water, that is, they do not mix with it, and due to one of the many properties of water, density, a force is generated pushing the drawing towards the surface. Ink is less dense than water.

Results

Very quickly, the drawings will separate from the plate, float, and if you gently move the plate, they will move.

[Link to video](#)



<https://www.sabermas.umich.mx/archivo/experimenta/560-numero-62/1105-dibujos-que-flotan-y-se-mueven.html>

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FIGURE 6. Example of a experimental script for one of the experiments *Breathing Life* with the different sections: objectives, materials, experimental methodology, scientific basis, and results.

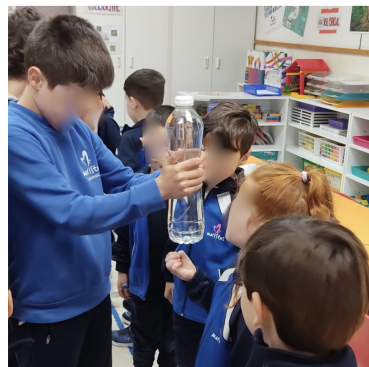


FIGURE 7. Students presenting experiments (Descartes's Diver, in this case), guided by older or younger peers. These sessions brought together students from all educational levels, sharing science across generations.

of combining interdisciplinary service-learning strategies with science-based inquiry and values education to foster responsible behaviour[9].

These results highlight that favorable outcomes in water consumption are not spontaneous, but rather the result of consistent educational efforts, student engagement, and the integration

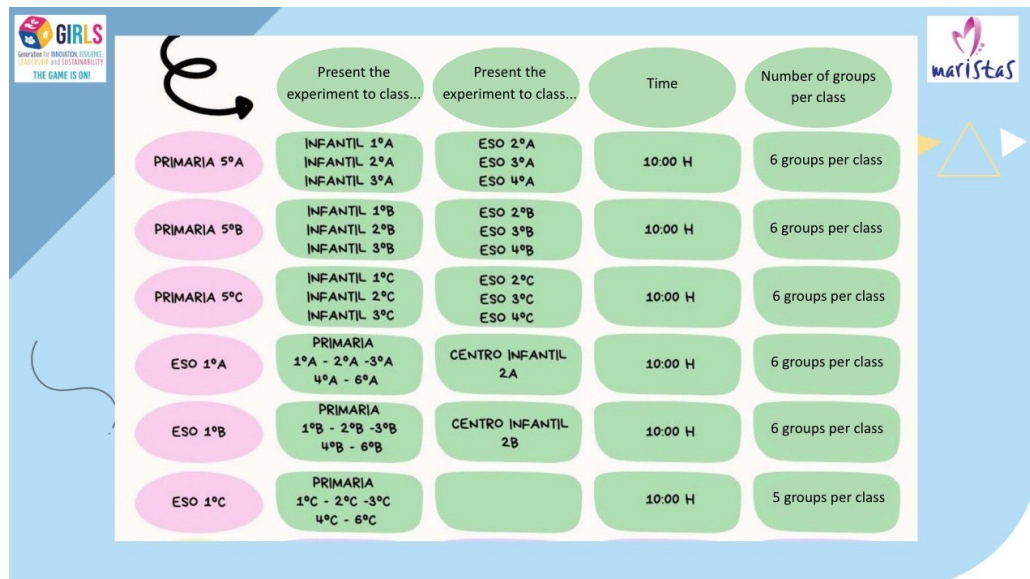


FIGURE 8. Example of the timetable for all the classes involved. Some classes, in this case 5th and 6th graders, share experiences with other educational levels. At other times, roles are reversed.

TABLE 1. Water consumption rate recorded in Colegio Maristas building over a year (cubic meters of water consumed / total number of students). The first column shows the school year, the second shows consumption ($\text{m}^3/\text{student}$) per year, and the fourth column shows the school's target after carrying out activities to promote responsible water use (in same units).

Schooll year	Water consumption in a year ($\text{m}^3/\text{student}$)	Tarject in a year ($\text{m}^3/\text{student}$)
2019 – 2020	3.31	-
2020 – 2021	2.57	-
2021 – 2022	2.60	-
2022 – 2023	2.57	2.54
2023 – 2024	4.15	2.41
2024 – 2025	2.08	2.29

of sustainability into the school's culture. The longitudinal data reinforce the need for sustained awareness campaigns to achieve lasting behavioural change.

5. CONCLUSIONS

Following the completion of the Service-Learning project "Watter you doing?", developed by the entire educational community of Colegio Maristas Champagnat in Salamanca (Spain), we can conclude:

- The "Water you doing?" project has proven to be a successful educational initiative at Colegio Marista Champagnat in Salamanca, achieving a tangible reduction in water

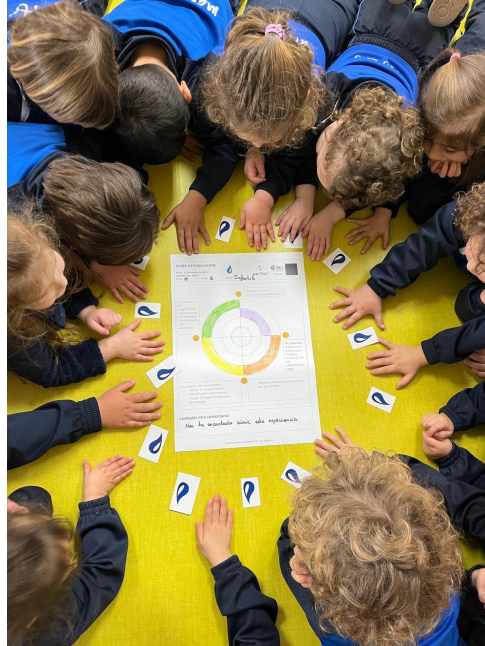


FIGURE 9. Preschool students evaluating the water experiment session at “Watter you Doing?” conducted by students of different level, using a “Target-based evaluation” (a graphic self-assessment tool).

consumption and fostering a positive shift in awareness and attitudes among students across all educational stages.

- The initiative involved a high level of participation, engaging a large number of teachers and students in the design, implementation, and evaluation of learning experiences. A particularly remarkable organisational effort enabled more than 30 small student groups to present water experiments in just one hour to all classrooms of the school, thanks to a carefully coordinated rotation system. This strategy ensured that each student was both a learner and a teacher, strengthening communication, leadership, and collaboration skills.
- The curricular connection was central to the project design, integrating scientific content, mathematical reasoning, communication, and civic values into a single educational experience. Furthermore, the initiative promoted inter-level interaction, as older and younger students worked together, aligning with the school’s identity as a UNICEF Level 3 Rights-Respecting School, where pupils’ voices and proposals for mixed-age collaboration were taken into account in the planning.
- The use of Service-Learning methodology, along with collaboration among internal teams such as *Eco2social*, *InnovaPlus*, and *Solidarity*, and the inspiration drawn from international partners such as Universidad de Salamanca (USAL), Universidad Vasco de Quiroga (UVAQ) and the association “Da una Esperanza de Vida” in Mexico, were key pillars of the project’s success.

- While the main evaluation tool was the “Target-based evaluation”, the impact was further supported by evidence of fluctuations in water usage, reinforcing the need for continuity and persistence in sustainability education. As presented in section 4, the water consumption data for the 2024 – 2025 school year revealed a remarkable improvement, with a consumption rate of 2.08 m³/student per year, the lowest in the last five academic years.
- This project not only fulfilled its goals of raising awareness and encouraging behaviour change, but also demonstrated that learning in motion, active student participation, and an intergenerational approach are fundamental to transformative education.
- It is strongly recommended to maintain and expand this type of initiative to promote long-term sustainable habits and strengthen the school community’s commitment to social and environmental responsibility.

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