



*Sustain/Biodiversity Education for
Sustainable Development*

Project number: 2021-1-ES01-KA220-SCH-000027705

R1 Validation: Report

Report: Questionnaire for teachers

Table of Contents:

1. Introduction
2. Results of the research
3. Conclusions
4. Recommendations

1. Introduction: Research overview

The SUSTAIN project is centred around effective and innovative education. Firstly, we will analyze the available information on the topics of air pollution and biodiversity loss in order to produce accurate and specific educational materials. This will help with the development of a Manual for teachers that will allow them to provide education for their students regarding biodiversity loss, its connection with air pollution, air pollution causes, ways to reduce air pollution and preserve biodiversity. Finally, SUSTAIN will provide a gamified learning solution based on Minecraft. A dedicated Minecraft world will be created, infused with narratives and challenges, where students will learn inside a virtual pollution-free community.

In order to create the Manual for teachers, the project partnership implemented an initial research which aimed to collect data about teachers' knowledge and current practice in education about biodiversity loss and air pollution. This research, a questionnaire, was addressed to primary and secondary school teachers who work with students between the ages of 9 and 12 years old, and was filled in anonymously.

This report is the result of an international research from 5 partners in 4 countries of the SUSTAIN project: Spain, Greece, Germany and the Netherlands. A total of 87 teachers from 41 different European schools participated in this research. The questionnaire reveals the current knowledge of the teachers and will help to develop the Manual based on the target group's needs.

2. Results

This section contains the results of the survey provided to primary teachers (working with pupils aged 9 to 12) in four European countries. In total 41 Primary and Secondary schools participated in the research (8 in Spain, 12 in Germany, 10 in the Netherlands, and 11 in Greece). (Chart 1 and 2)

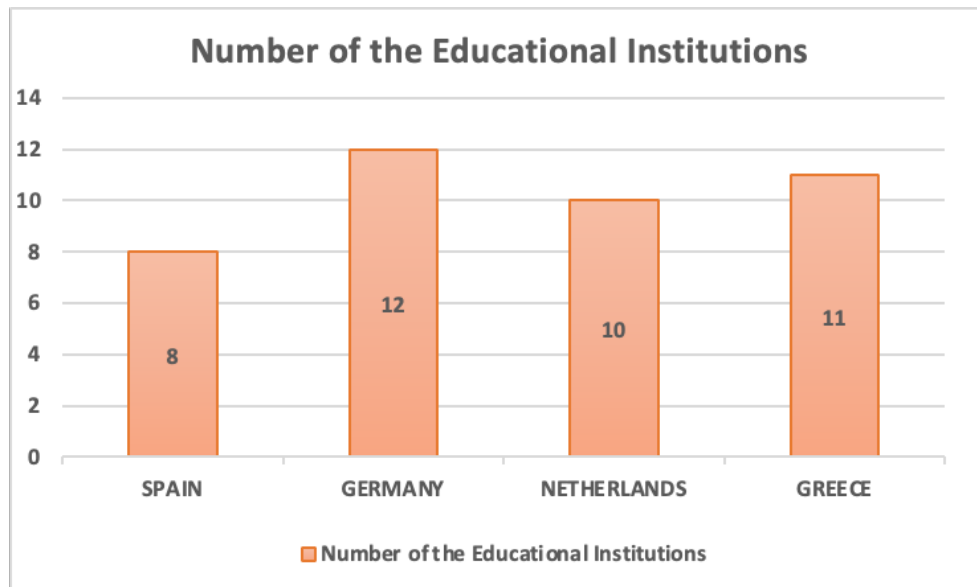


Chart 1

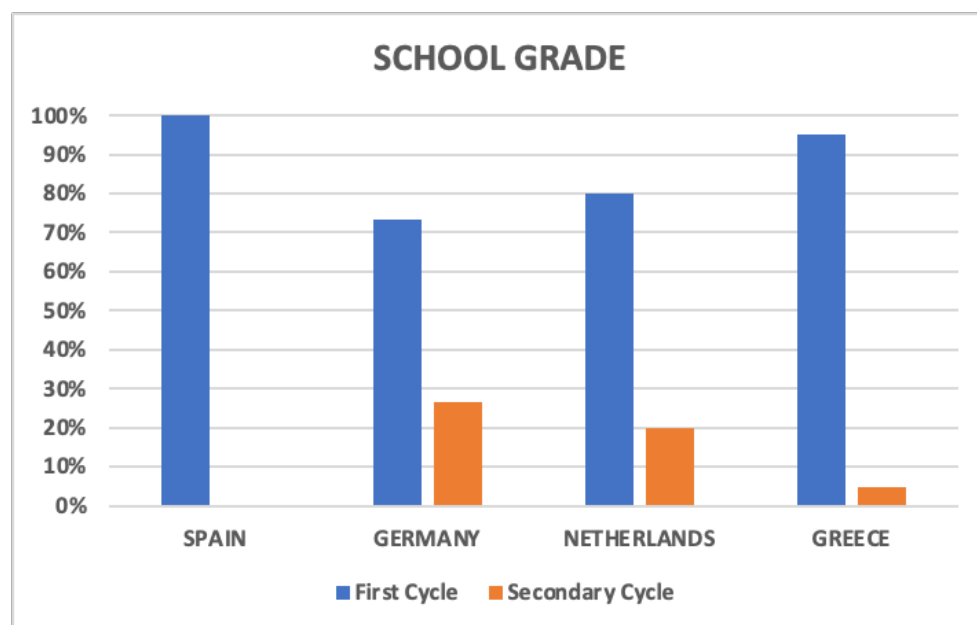


Chart 2.

The questionnaire contained questions about educational practices in topics related to Biodiversity. The questions were divided into 2 categories:

- A) Questions related to politics of Education institutions when it comes to education regarding Biodiversity, teachers training in that area and similar;
- B) Questions related to teachers' perceptions about their awareness of biodiversity loss, students' knowledge and interest in related topics, and tools and methodologies they normally use in the classroom.

The majority of participants of the survey are teachers of general subjects, a common practice in primary education. Other participants were teachers of specific subjects such as science, geography, literature, English or other languages, art, mathematics, sports, music and other education topics. (Chart 3)

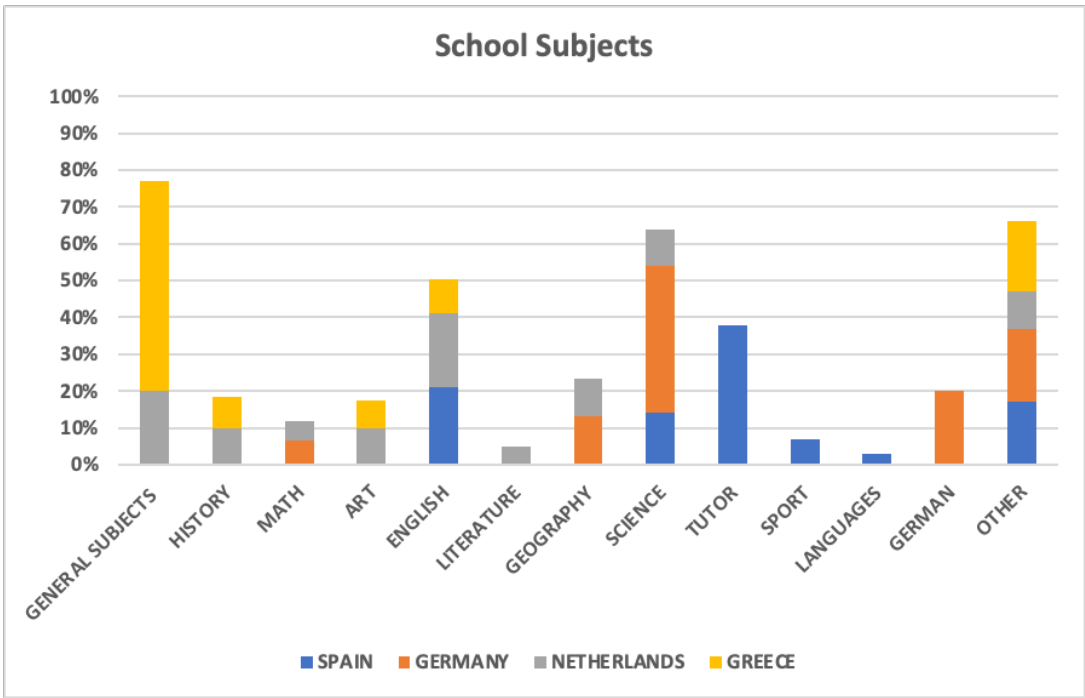


Chart 3

The teachers of each country questioned whether their institutions had informed them about the impact of air pollution and the loss of biodiversity, 83% have answered positively (always/ often/ sometimes), while 17% were informed rarely or never on that subject. (Chart 4).

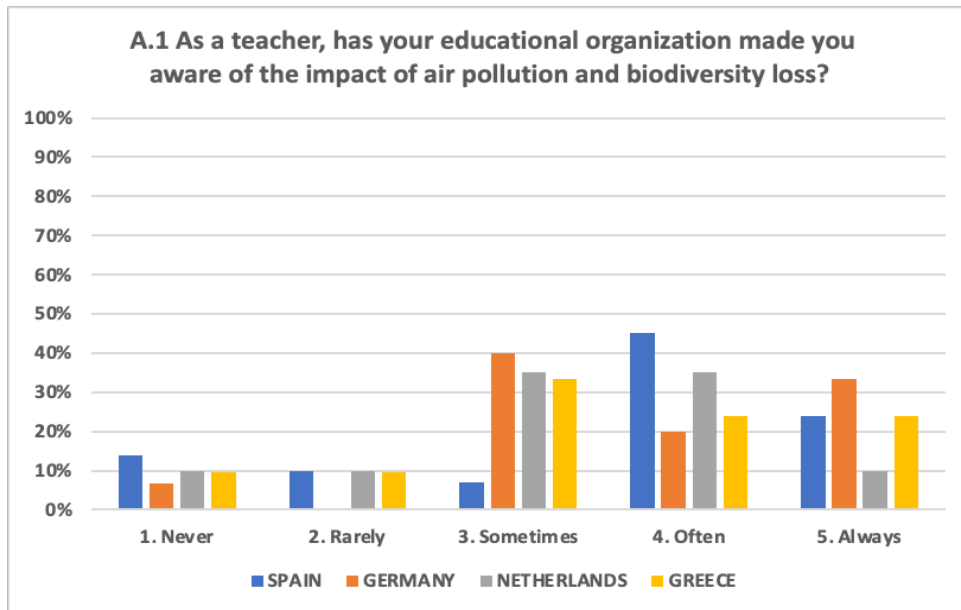


Chart 4.

In addition, teachers were asked if they promote innovative methods of training in environmental education. In total, 45% use training methods related to environmental education, while 24% do not promote those methods. 31% of participants sometimes implement their methods with environmental education. (Chart 5)

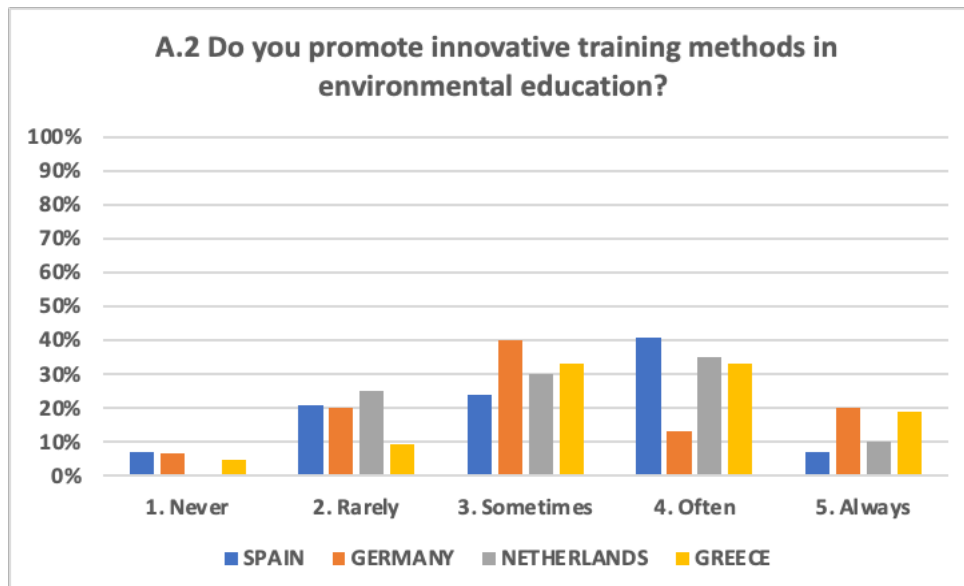


Chart 5.

When asking whether institutions organise environmental education training courses for their teachers, in 31% of cases the institution does never organise training courses for teachers on

the impact of air pollution or biodiversity loss, 50% organise training only occasionally, and only 19% of institutions do it on a regular basis. (Chart 6)

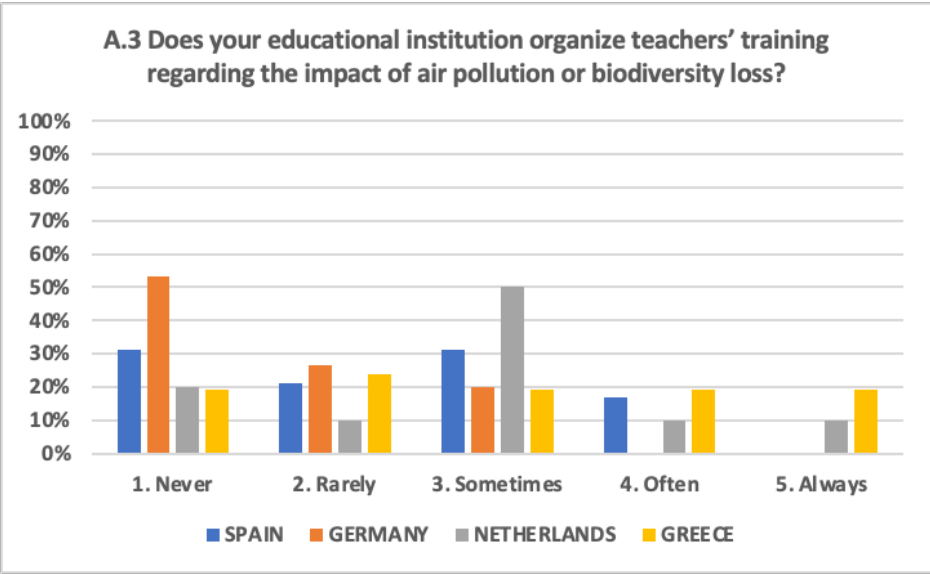


Chart 6.

As can be observed below, 69% of the participants responded that in their school there are many actions/campaigns in place, in order to engage everyone in reducing/ recycling / reusing/ refusing & rethinking plastic items, but with some differences between the countries. In Spain (100%), Germany (93%) and Greece (62%) there is a good tendency to carry out campaigns/actions on this topic. Instead, the Netherlands (20%) showed greater difficulties in carrying out these awareness campaigns/actions. (Chart 7)

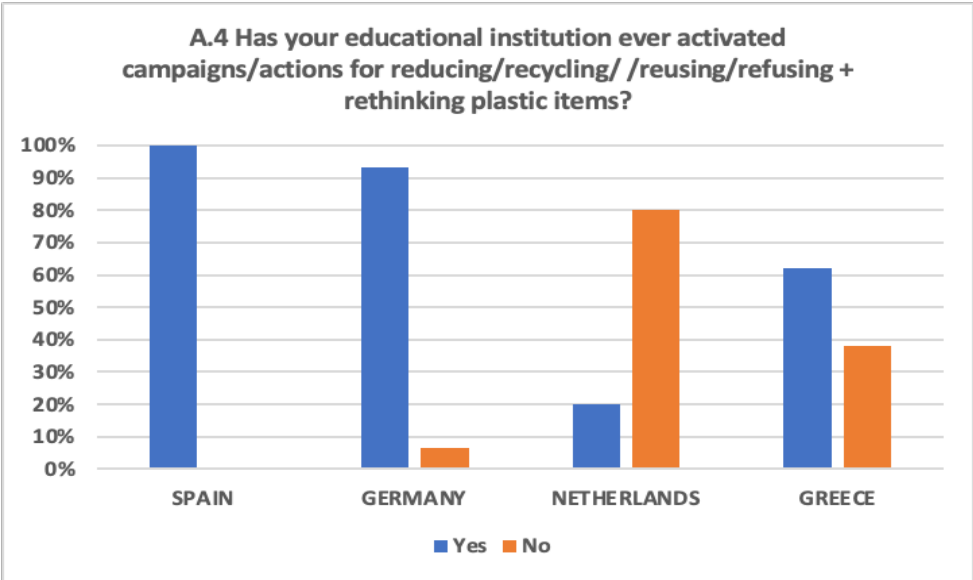


Chart 7.

Based on Chart 7, the positive answers of teachers of the institution where they have activated campaigns/ actions for reducing/ recycling/ reusing/ refusing + rethinking plastic items, include activities like: **collection of plastic caps, school activities to reuse recycled materials, waste collection campaigns and competitions, installation of recycling areas or plastic bins, mobilities, the creation of a 'school forest', awareness-raising talks, role playing, cleaning spaces, educational campaigns about environment, etc.**

Regarding the collaboration with other organisations or stakeholders to address the topic of air pollution or biodiversity loss, just 35% of all institutions reported such partnership. The vast majority of the respondents, almost 65%, states that their educational institution does not carry out activities in collaboration with other entities. Spain (59%) is the country with more partnerships with other entities on the environmental issue, followed by Germany, which has a little less than half (40%), Greece (33%) and the Netherlands (10%). (Chart 8)

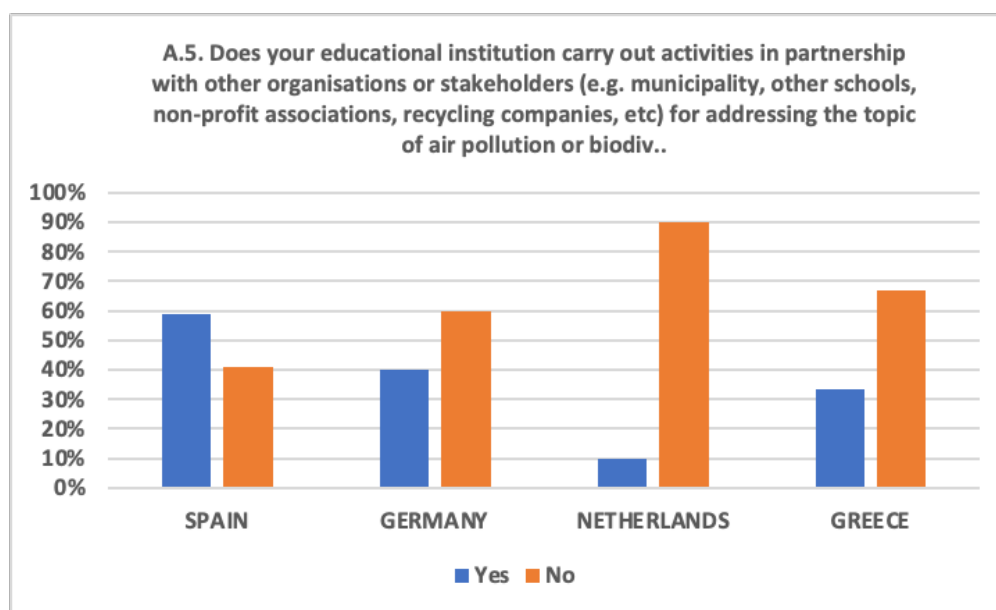


Chart 8.

As expressed by teachers in the chart 8, the institutions that carry out activities in partnership, cooperate mainly with: **municipality, recycling companies, other schools, centres and environmental education organisations.**

As can be observed in Chart 9, most of the teachers interviewed consider that students are mostly aware of the consequences of air pollution (75%). From their point of view, less than one third are just slightly aware or not aware at all (25%). (Chart 9)

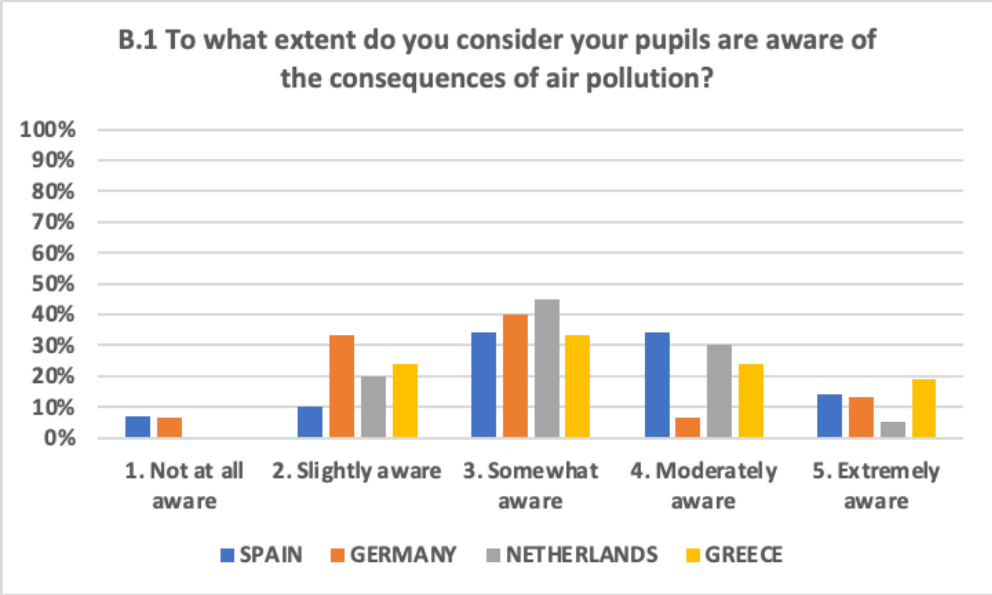


Chart 9.

During their teaching practice, 83% of the participants reported that they inform their students about air pollution or biodiversity loss issues. German teachers have the highest percentage (100%), on involvement in those topics. They are followed by Greece (95%), Spain (86%) and the Netherlands (50%). (Chart 10)

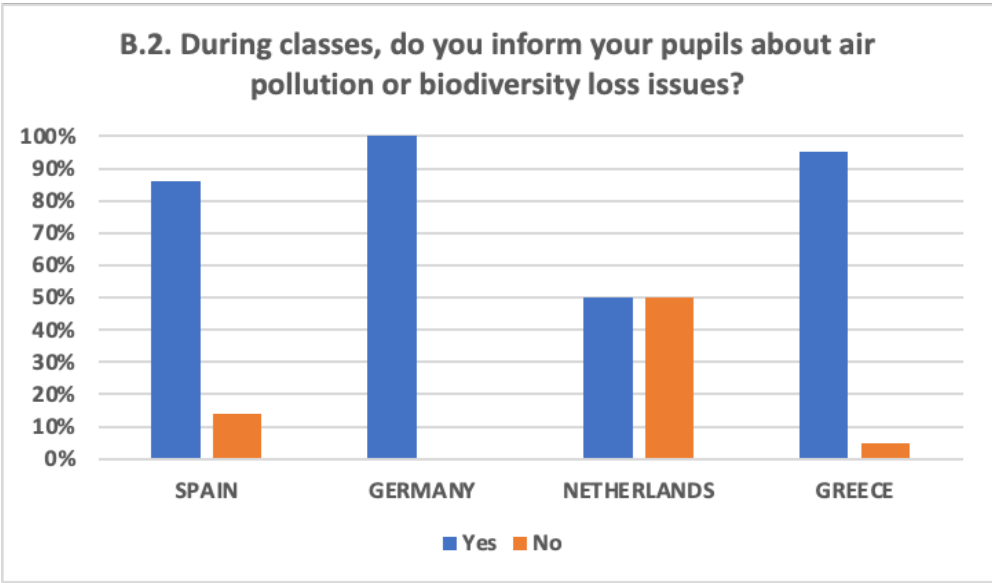


Chart 10.

46% of the teachers are using game-based learning (GBL) as a methodology with their students. On chart 11 it can be observed that Spanish (76%) and German (60%) teachers are the ones who use game-based learning (GBL) the most, in comparison to the ones from Greece (43%) and the Netherlands (5%). (Chart 11)

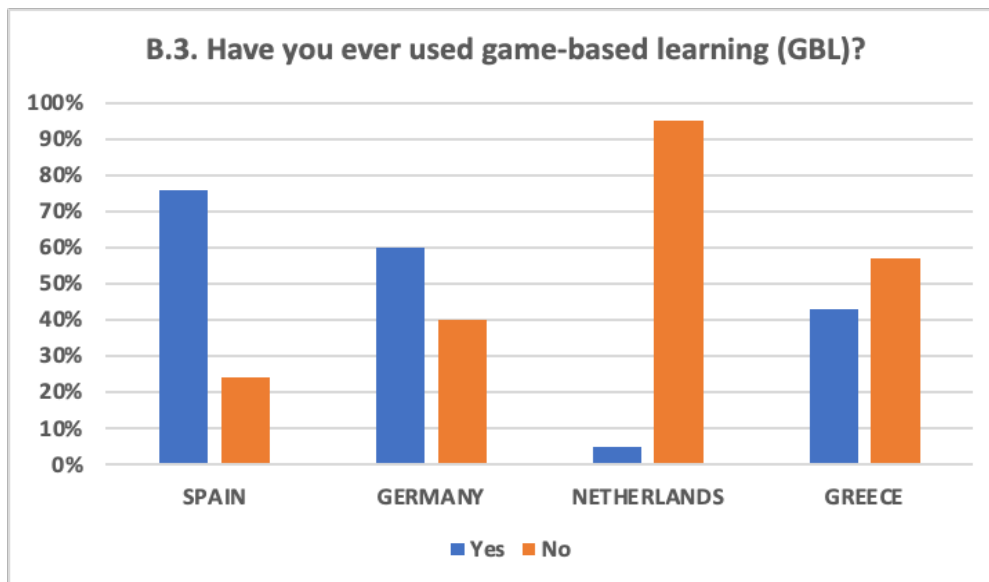


Chart 11.

Some examples of GBL tools used by the teachers were:

- **Board games**
- **Escape rooms**
- **Kahoot**
- **Classdojo**
- **Twinkle or Genially**
- **Business games**
- **Online simulation**
- **World game**
- **Ocean memory**
- **Hot potatoes software**
- **Theatrical plays**
- **Games of categorization of items for recycling**
- **Future scenario games**

➤ **Minecraft**

Based on the chart below, less than half of the respondents (41%), motivate their pupils to participate in after-school activities related to prevention of air pollution and loss of biodiversity, and more than half (49%) does not motivate their pupils to participate in after-school activities, or they are not aware of such activities happening in their school. German teachers (53%) are the ones who motivate their students the most to participate in after-school activities. (Chart 12)

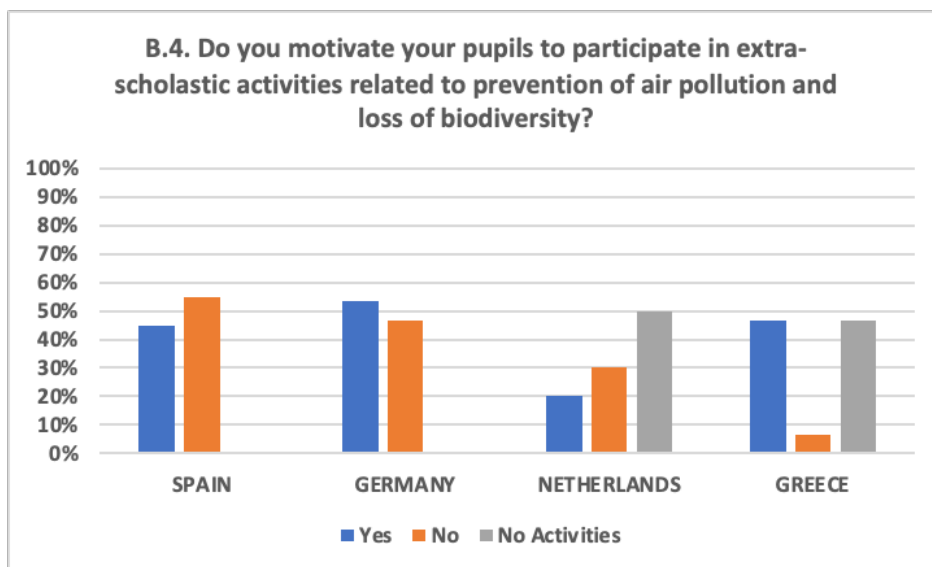


Chart 12.

When it comes to the self- evaluation regarding air pollution and biodiversity loss topics, 89% of participants are mostly aware of those issues. Only 11% consider they are just slightly aware or now aware at all. In conclusion, a great number of the participants of the questionnaire are well-informed on the topics related to air-pollution or biodiversity loss. (Chart 13).

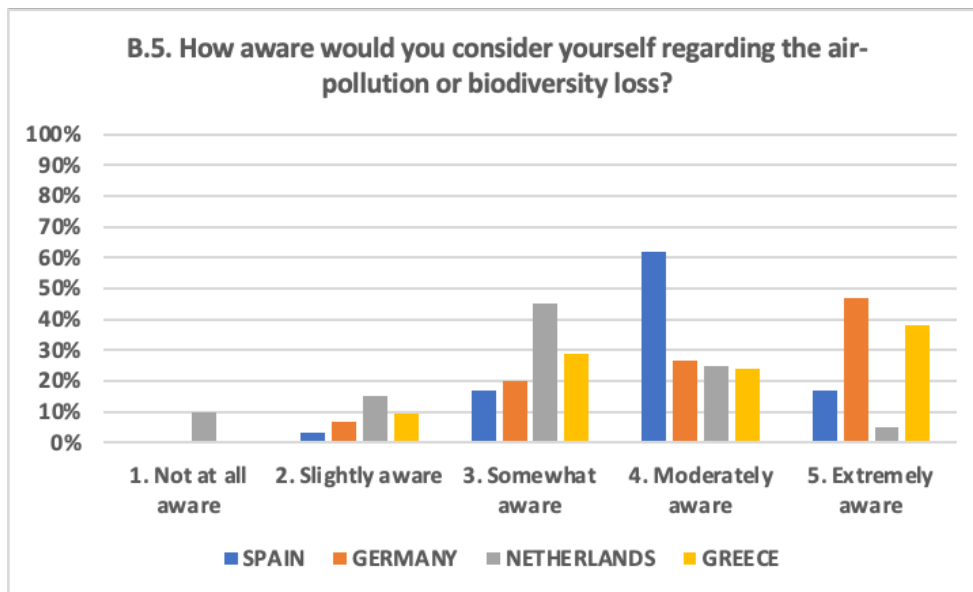


Chart 13.

Participants of the survey have been asked to list 1-2 reasons that motivate them to engage in the topic of addressing air pollution in their own school/class. The majority of the reasons that have been expressed are related to:

- *To fight climate change, global warming and its consequences for our health*
- *To help students understand the relationship between science and environment*
- *To increase quality of life*
- *Responsibility towards future generations*
- *Sustainable future*
- *To pinpoint the importance of protecting the environment*
- *To embrace eco-friendly practices in their daily lives*
- *To be informed about air pollution and know how minimise it*
- *To raise awareness on environmental issues*

In addition, they have been asked about the reasons that de-motivate them from engaging on the topic of air-pollution in their school/class. These are some of the answers provided:

- *When the educational institution does not contribute to the creation of actions and educational programmes*
- *Lack of educational resources*
- *Lack of funding and regional laws*

- *Lack of teacher training and information*
- *Limited collaboration with different school departments*
- *Lack of interest from the students in the daily environment*
- *Overwhelming complexity of problems*
- *No time in class to inform the students due to the heavy school schedule*
- *Lack of support from public administrations*

3. Conclusions

From these questionnaires, filled in by 41 primary schools in 4 European countries, it was found that just over half of participants (54%) are actually informed about the risks related to the loss of biodiversity and air pollution. The results' analysis, made by each partner organisation, shows that: in Spain, almost 70% of primary school teachers report that their schools do try to promote the importance of air pollution and biodiversity loss, around 55% in Germany, and almost 50% in the Netherlands and Greece.

In addition, only 45% of the teachers use methodologies related to environmental education. This could be caused due to the lack of specific training for teachers, useful to acquire more knowledge on the subject. In fact, in total, 31% of the organisations do not organise training courses for teachers on the impact of air pollution or biodiversity loss. There are some variations between countries: In Germany 53% of teachers were never trained in this field, in Spain 31%, in Greece 19% and in the Netherlands 20%.

Despite that, in all countries teachers consider that a big number of pupils (94%) are aware about the air pollution and biodiversity loss, and also a big number of teachers do inform their pupils about those topics (83%).

A 46% of the teachers are using game-based learning (GBL) as a methodology with their students with big differences between countries: Spanish (76%) and German (60%) teachers are the ones who use game-based learning the most (GBL), while the ones from Greece (43%) and the Netherlands (5%) report lower percentages.

Finally, the most common reasons which motivates teachers to include the topic of air-pollution in their own school/class are: *To fight climate change, global warming and its consequences for our health, To help students understand the relationship between science and environment, and Responsibility towards future generations.*

On the other hand, the main reasons that they find demotivating are: *The educational institution does not contribute to the creation of actions and educational programmes, Lack of teacher training and information, Lack of time in class to inform the students, Lack of educational resources.*

4. Recommendations

Based on the results from the research done with teachers, the following conclusions should be taking into account when creating content for R1 Manual:

1. The number of schools who raise awareness about biodiversity loss and provide teachers training is quite low, which means that the results and actions of this project can contribute significantly to increase the number of primary schools involved in these topics.

→ **Recommendation:**

Each partner should try to involve as many schools as possible from their local community in the pilot testing and project dissemination, once both results are ready.

2. Popular themes between primary schools which do take actions related to biodiversity are mostly related to the following: recycling, waste reduction, talks and campaigns about the environment.

→ **Recommendation:**

Include basic terminology and theoretical background on Biodiversity to the following areas: air pollution, environmental changes, extinction of wild species, protection of the land and sea, connection between human activities with all this issues, main causes of biodiversity loss, Eco-friendly behaviour, education for biodiversity, adopt actions to reduce environmental pollution, etc.

3. GBL as a teaching methodology is used in less than a half of the organisations who participated in this research. Only one school reported using Minecraft as a tool.

→ **Recommendation:**

When introducing Minecraft to local stakeholders (primary schools), it will be needed to provide specific training to the teachers for the use of the World - digital competencies. This data should also be taken into consideration when creating lesson plans, which should contain detailed instructions. Also, it could be useful to create video tutorials and similar tools for the teachers training.