PLACES

Platform of Local Authorities and Communicators Engaged in Science

Modules used: C1, C2

Science Event

2012

This is a standardised version of the original case analysis number 4. Specific names and locations have been substituted from the original document number 4 with generic references in order to preserve the anonymity of every participant.

In case you would like to read the original document, please contact occ@upf.edu.

Contents

Abstract

This research was commissioned by a European project named Platform of Local Authorities and Communicators Engaged in Science (PLACES, REFERENCE 5) to measure the impact of initiatives and policies in science communication and scientific culture in general. In this particular case, this research aims to determine the impact of an event held in a primary school in the capital of this country, under the sustainable development topic.

This review summarises and highlights the possible learning opportunities for students, the possible networking between various stakeholders, the enhancement of teachers' careers and the quality of their teaching, and finally the possibility of getting more young people interested in science.

The results suggest that the event, as a successful undertaking, improved the quality of life of students as well as providing them with skills for sustainable development. The results also reveal the excellent collaboration between all the internal and external stakeholders, and that teachers were proud to contribute to this. Finally, the event explored and enhanced students' knowledge and improved their sense of responsibility with regards to environmental problems.

Introduction

This report is part of the European project called PLACES (Platform of Local Authorities and Communicators Engaged in Science) whose main goal is to offer (to a wide and diverse community of actors) a common platform so that their science communication activities can be structured at a city/regional level. It summarises and highlights the impact assessment of this country's case with a view to offering knowledge in the field of Cities of Scientific Culture.

Specifically, the results of all the case studies will serve to assist in the development of future guides and recommendations for the European Commission and those responsible for implementing initiatives in the field of communication and scientific culture. Case studies, including this country's case, aim to lay the foundations for the study of the social impact of science communication initiatives and policies at the local/regional level.

With regards to the three dimensions (impact on the public, impact on the political sphere, impact on the actors) and the three levels (science centres and museums, science events, science cities), this report focuses on the impact on actors of a science event. In particular, as mentioned in the national overview of scientific culture in this country's case, scientific culture is promoted through the knowledge of sustainable development and environmental awareness which is based mainly on the national public educational system (reference 9). Thus, in order to reveal the impacts on the actors, under the sustainable development topic, we selected a school with its teachers and students and the following were our research aims:

- To reveal the enhanced learning opportunities for students
- To identify possible networking between actors of different categories
- To explore teachers' career enhancement and quality teaching opportunities
- To examine the possibility of encouraging young people into science

In order to reveal these research aims within the boundaries of a chosen school, a science event taking place over a period of time was selected. The specific science event was a team effort to reform the natural environment of the school, launched at the start of Spring and lasting three months. The event was, surprisingly, initiated by students themselves, in conjunction with the introduction of Environmental Education and Education for Sustainable Development to the curriculum by the Ministry of Education and Culture of this country. The main goal of these subjects is to increase students' environmental literacy, as well as

increasing students' environmental awareness, leading to greater environmental vision, skills and values (MOEC, 2010). Specifically, after reading a text in the classroom about the environment, students wanted to adopt a small piece of land belonging to the school and enhance the environmental beauty of their school as well as experiencing greater environmental awareness, including recycling programmes.

This initiative came about thanks to the students, together with the support of their teachers and the school principal. The students, with their teacher's support, wrote a letter to their school principal asking to adopt a small piece of school land in order to use it to grow flowers. This amazing opportunity gave the principal the idea of converting this into an annual event whereby each Spring students could use some school land for the purpose of improving the natural environment of the school.

Moreover, the target audience unquestionably involves all the students of the school by stressing the need to "develop strong affiliations and knowledge as well as an interest in environmental issues"; a crucial necessity in today's society. In addition, the specific event was supported by external factors and stakeholders who celebrated and supported the initiative, including parents and the local community.

Finally, we have to stress that this particular case is very desirable and worthy because (as mentioned previously in our national overview on scientific culture) the place of science in society in this country can be realised mainly through the public education system (reference 9). The national education system is the driving force when it comes to promoting scientific culture and, in particular, knowledge on sustainable development, as one of the priorities established here in this country (reference 9). Also, according to the European Science Events Association (reference 7), a science event encompasses a whole group of diverse activities including science weeks, science festivals or science days. This is consistent with our case study.

Furthermore, one of the most widely recognised objectives of a science communication event is to raise public awareness of science, as well as encouraging more young people into science (reference 7). Having that in mind, the above basic concept with regards to a science event, the following case study reveals some of these aspects. Finally, we have to add that our focus on the environmental issues regarding science and technology in Europe also emerges from a recent Euro barometer report from the European Commission (reference 6) which revealed that 88% of the respondents at the EU27 level are interested in environmental problems.

Methods

In order to present the results on this country's case in alignment with the instructions given by the PLACES toolkit, the case study methodology was chosen. All the researchers across Europe were required to carry out a series of case studies in order to present guides and recommendations in the field of communication and scientific culture. According to Creswell (reference 4), a case study research methodology is a qualitative approach in which the investigator explores a bounded system (case) or multiple bounded systems (cases) over time, through detailed, in-depth data collection involving multiple sources of information (for example, observations, interviews, audiovisual material, documents and reports), and reports a case description and case-based themes. The great strength of the case study method is that it allows researchers to concentrate on a specific instance or situation and to identify, or attempt to identify, the various interactive processes at work (reference 1).

Having that in mind, combined with the directions given by the PLACES toolkit, a school and its science event was selected. Furthermore, in deciding upon the schema and the impact on the actors involved in the science communication initiatives and policy, teachers were considered as the most appropriate choice for our sample population. Although the research team felt the need to involve students in the sample, due to tough regulations and protection of student privacy (written permission from the Ministry of Education and Culture of this country required), this would have required great time and effort.

Empirical data were generated from interviews. The interviews were used as the specific research tool from the PLACES toolkit, in an effort to provide answers to our focused research aims. According to Cohen, Manion and Morrison (reference 3), interviews are categorised as one of the most effective and frequently used methods in qualitative research. Moreover, Bogdan and Biklen (reference 2) stated that interviews are a good source of information for a case study where the researchers' intent is to solicit the perspective of an individual.

Thus, following the list of study modules or instruments in accordance with the PLACES instructions, 'Module C1: Semi-structured interview' was selected in order to analyse the impact on actors; in this case, the teachers of the selected school. The specific study module was considered to be the most appropriate because of the focus of the establishment of sustainable development within a school context in the country. In particular, we selected the semi-structured interview involving schools. The interview plan, as presented in the PLACES

toolkit, was divided in two parts. On the one hand, the questions referred to the interviewee's involvement in the case. The interviewee would have the opportunity to describe the involvement in the case under investigation from his/her own perspective and to describe how he/she became involved and how and in what role he/she was involved. On the other hand, the questions in the second part focused on possible impacts with regards to the enhancing of learning opportunities for students, competitiveness, networking between actors, positive feedback and motivation and career enhancement.

In addition to the above, 'Module C2: Focus groups with relevant actors' was used in an effort to elicit teachers' different views on the same subject, allowing each participant to talk about impacts on himself/herself in a group format. Only a brief outline of the results will be presented below due to the fact that, as mentioned in the toolkit on page 74: "for the purpose of identifying impacts on actors it may thus be preferable to use module C1 (individual interviews) rather than module C2 (focus groups)." More specifically, Module C2 is a collective semi-directive interview measuring the impact on the actors represented in the focus group due to their participation in the event.

The next step was the translation of the interview module into the national language, in order to adjust the interview plan procedure into the context of this country. Specifically, in the case of the translation procedure, the assistance of an external researcher was requested in order to identify and prevent potential errors that could affect the interview plan and subsequently the interpretation of the results. At this stage, it is worth mentioning that the translated interview module is available in the annex of this report.

Afterwards, we contacted the school principal so that we could be present at the event concerning the celebration of the environment of the school. The chosen school is located in the south east of the country's capital and consists of two floors. In general, the school is quite clean and well kept, especially after the recent building upgrade and expansion. On the day of the event, we had the privilege to spend some time with the students and the teachers talking about the event. In the meantime, the preparation of the environmental recreation of the school began with the students planting flowers under the guidance of a specialised gardening person. Students began to recreate the space and were extremely enthusiastic. During the day, we had the opportunity to observe students learning about the environment and proposing new ways to help sustainable development. At the end of the event, we reconfirmed our next visit where we would conduct the interviews with the teachers.

The next meeting was scheduled several weeks later, and once again took place in the school, where we had the opportunity to talk to and interview five teachers who took part in the specific event. The teachers responded enthusiastically and during the whole interview the anonymity of individuals was guaranteed as an important element of the whole procedure. A face-to-face interview was conducted, allowing the interviewee to answer each question extensively. Throughout the whole process we encouraged the teachers to talk openly about their perceptions and beliefs with regards to the subject. During the interview process, we made sure that our conversation remained focused on the topics of the interview guideline in order to represent the best possible results. Throughout the interview, a digital recorder was used in order to record it. The teachers did not object to its use, expressing their views and opinions on the subject openly.

Moreover, another meeting was scheduled in order to organise in a focus group with four teachers, giving participants the opportunity to talk about their responses and the respective institution's responses. Once again, a digital recorder was used and the teachers did not object to its use. In general and in accordance with the PLACES toolkit, we could add that the main goal of the interviews (as well as the focus group discussion) was to measure the impact that participating in the event has on the actors themselves, in this particular case, the teachers of the school.

The next step concerned data processing, namely, the transcriptions of the interviews. The transcriptions were made using the software programme "Sound Scriber". The analysis of the interviews was based on the transcripts as they were extracted from the audio recordings. Specifically, through content analysis, the qualitative data extracted from the interviews were sorted into appropriate categories according to the specific research aims. In particular, the written transcripts of the interviews were read and each of the statements made by the interviewees was analysed to generate themes based to the research aims mentioned in the Introduction. We also included a verbal description of the impacts on the relevant actors in order to increase the readers' perception of the results and to present a more vivid presentation of the outcomes.

Furthermore, the transcriptions of the audio recordings from the focus group were analysed in order to provide us with information about the participants' involvement in the case. Finally, after the analysis of the data, conclusions and recommendations were drawn up from the emerging themes as part of the research report.

Results

This case study explored the effects on teachers and students of a science event which reformed the natural environment of a primary school in the capital of the country. The specific science event was a team effort, involving the school principal, teachers and students. The students decided to adopt a small piece of school land and after having it cleared with the support of some external stakeholders (i.e., parents), they began to transform the land by planting flowers and erecting wooden boxes to serve as birdfeeders, where they would leave leftover food for the birds visiting their school.

Bearing in mind that this particular event was initiated by the students of the school, it inspired the principal to set this up as an annual Spring event where students would reform the natural environment of the school.

First, we present the teachers' general views on this particular case, as extracted from the first part of the interview plan, in order to get an overview of the whole event. As we mentioned before, this initiative was mainly initiated by the students of the school in conjunction with the curriculum on environmental education. Specifically, one teacher asserts:

"*We had prioritised the upgrading of our school premises to become greener, and the 3rd grade students adopted a piece of land located directly behind our classroom, and the event to reform the natural environment of our school was created. The initiative for this event came mainly from the students after being inspired by a text in their national language lesson titled 'The world around us'. Also, this initiative was born as part of the educational objectives of the school."* (Teacher A)

In particular, concerning the language lesson, students were thrilled and very enthusiastic and felt the need to do something similar to their own school environment. The following quotation from a teacher, who took part in the event, is characteristic:

"Specifically, under the subject 'Recycling and environmental awareness', there was a text where the children adopted a piece of land in order to recreate the environment and based on that text our students got excited and felt the need to do something similar in their own school." (Teacher C)

From their point of view, the teachers' involvement was decisive to the success of this event. Moreover, the cooperation between them, as well as with the support of the school principal was apparent. In particular, with regards to their own involvement in the event, one of the teachers stated:

"My own role in the whole event was coordinating and guiding the event, in an effort to promote students to act admirably". (Teacher B)

Furthermore, another teacher who was involved in the event reported the following, focusing her attention to the student's capabilities for the success of the event.

Also, deep in my mind, I had an advanced plan of the whole event, which depended on the capacities of our students as well as on all the external and internal factors that might contribute to the success of our effort." (Teacher A)

At this point, we have to remind the reader that the main analysis in this report is based on the research aims, as previously mentioned in the introduction section of this report. In particular, through the research aims, four categories of results were introduced and are presented below. The specific four categories which allow us to gain knowledge on the subject are the following:

- Enhancing learning opportunities for students
- Networking between actors of different categories
- Encouraging young people into science
- Teachers' career enhancement and quality teaching

For the purpose of this paper, only findings related to the above-mentioned specific research aims have been reported. Also, we should stress the fact that the findings reported are mainly based on the analysis of the interview data. We will only briefly discuss our focus group results in an attempt to represent the impact on the participants in this particular case. Finally, the results obtained from this piece of research are presented below.

Enhancing learning opportunities for students

The benefits and learning opportunities for the students of the school are quite numerous. In general, the school yard and the specific piece of land that they acquired were recreated and made more beautiful. Now, there is a piece of land (a garden) where the students can gather and study the types of flowers they have planted as well as watching these plants grow.

Furthermore, an important element concerning the learning opportunities for students concerns their increased environmental awareness. Specifically, one of the teachers mentioned that students wanted to recycle different kinds of things like bottles or papers so the school principal decided to buy specific recycling bins so that students could become familiar with the existence of these bins. The following quotation from the teacher is characteristic:

"Recycling as a part of the environmental awareness was introduced to students. The school administration decided to buy specific recycling bins for the event in order to recycle bottles and papers and fostering environmental awareness." (Teacher D)

As we can see, the initial idea from the students led to a whole host of other multiple effects. Apart from that, the specific event provided all the students with a different perspective from 'every day' teaching. For example, a teacher mentioned that the environmental awareness was created not from the classroom as part of a text or a lesson. On the contrary, there was field work on the school premises, as well as talking to people who were experts in gardening. One of the teachers stated the following:

"The difference with this specific activity and the whole event is that students' environmental awareness grew as a result of field work. We didn't try to persuade them to recycle or to learn about the environment through texts. Also, talking with experts on this subject was very useful for our students." (Teacher A)

In conjunction with the above, students engaged in a small piece of research concerning the whole procedure. Specifically, through stories and fairytales about the environment they gained a lot of new information and knowledge. Also, for the visiting birds, students wanted to build some bird feeders so they could leave their leftover food for the birds. In order to do that, they studied different kinds of ways to built a bird feeder, as well as the birds' nutritional habits and specifically if birds can eat leftover bread as part of their diet. Teachers report the following:

"With my help, students visited some internet sites and read some other stories and fairytales about the environment. These kinds of different sources of information provided a different learning perspective for all my students" (Teacher E)

"…for example, students wanted to erect some bird feeders for the birds. They learned from the internet what bird feeders look like and also they were informed about the birds' nutritional habits." (Teacher C)

In addition to the evidence indicating the difference from 'every day' teaching provided by the creation of this event, signs of the increased quality of teaching have been observed. Specifically, the quality of teaching improved significantly in that students' learning went beyond the boundaries of the classroom, exploring by themselves and coming into contact with several other stakeholders for the purposes of their event. One of the teachers mentioned the following:

"The quality of teaching has improved significantly. Students take their own actions with regards to the event, exploring new ways of learning such as the internet and talking to different experts on the subject of the environmental recreation of a piece of land…"

(Teacher C)

Finally, we have distinguished three key elements in relation to this kind of events, as pointed out by the teachers and where knowledge goes beyond the classroom. These are:

- Students can develop the feeling of "belonging" to the school and to the school community in general
- They better understood their own role and responsibility towards improving the quality of their school life
- Students understood the benefits of the study in their everyday life in order to suggest and implement practices which can improve their choices regarding their quality of life

Networking between actors of different categories

Another distinguished result which emerged from the research aims was the involvement of different actors in the whole event. Teachers responded that there was significant interaction and collaboration between the preparation and the implementation of the event to reform a part of the natural environment of the school. Specifically, one teacher mentioned that most of the collaborations were new and emerged from the students. In order to understand the above statement, the following quotation is characteristic:

"We didn't know the people we collaborated with. On the contrary, the collaboration was a result of our students. We began to discuss the topic with our students and one of them told us that his father was a florist and has a flower shop. So, basically we didn't know them but we came in contact with them." (Teacher D)

Furthermore, from the interview analysis, the results revealed the strong collaboration with various externals stakeholders who supported and facilitated this event. Specifically, the local community was present and helped the school to keep and maintain the specific land that the students "adopted" and they cleared it and made it ready for planting. Also, the florist (who, as mentioned above, was a student's father) offered all the flowers free of charge as well as providing help on the day of the event, as one of the assistants from the flower shop helped students plant the flowers and talked to them about the different variety of flowers and ways of looking after them. Also the students sought the support of a carpenter who was responsible for the construction of the bird feeders. The following quotations from the teachers of the school are characteristic:

"*As for the clearing of the land, one person from the municipality visited the school with the necessary equipment and cleared the specific piece of land."* (Teacher E)

"Another important partnership is the florist, who was one of our students' parents. He owns a flower shop and offered our school all the flowers for free. Also, it is worth mentioning that during the day of the event, an employee from the flower shop came and helped the children plant the flowers." (Teacher A)

"*Also, we had to make the bird feeders which we designed with the help of the students, and gave the designs to our school carpenter who built them for us."* (Teacher C)

In addition to the above, teachers agreed that all the contacts and collaborations were very useful in various ways. Specifically, the data revealed that these kinds of relationships and collaborations strengthen the bonds between the school and other stakeholders such as the local community and parents. In addition, some of the teachers revealed that they gained a lot of knowledge and experiences on different subjects beyond their teaching skills, such as knowledge about the environment and taking care of plants. The following quotations justified the teachers' view:

"These contacts of course were very useful. Just imagine how important it is for our school to have that sort of collaboration with parents and the local community. Parents can learn and get involved with school matters as well as learning about our school culture and the students in general. Apart from that, our school can rely on the local community which can celebrate special moments like this event with us. Of course, this has made the school more beautiful, and as it is a visually accessible from the street, it benefits the local community too." (Teacher D)

"Also, the fact that I, as a teacher, came into contact with a florist, gave me the opportunity to gain some knowledge about flowers and plants. This is an opportunity for me to use it in my personal life and at home." (Teacher B)

Lastly, this overwhelming acceptance of the collaboration between school and other stakeholders provided the impetus for further cooperation, beyond the specific event. According to one teacher, the cooperation provided the initiative for further collaboration with all the stakeholders in an annual event concerning the adoption and recreation of a small piece of school land.

"After this particular event, we decided that this collaboration will be repeated next year in another similar event involving all the students and their parents, as well as the local community, providing more opportunities for all." (Teacher B)

Teachers' career enhancement and quality teaching

In considering how teachers value these kinds of events with regards to their career enhancement, they ascertain that these kinds of events enhance their

professional collaboration with all the internal stakeholders and specifically with the principal of the school as well as with all other teachers.

In particular, there is a greater appreciation of the teacher's image and status, and they feel proud of their accomplishments. Moreover, they insist that this is a consequence of the excellent collaboration between the principal and the teachers themselves, which impacts all the students of the school. In conjunction with the above, the positive climate created with these initiatives provides greater career satisfaction and willingness to offer much more to the school. The following quotations are characteristic:

"These kinds of efforts are appreciated by everyone and especially by our school principal who supports us and gives us the opportunity to work more on our professional career. Also, with great joy and satisfaction you can see all of our students celebrating and enjoying their creation."
(Teacher E)

"My colleagues reacted positively and there was no negative criticism or reaction, because we support each other. This gives me strength to carry on creating new things and being more creative in enhancing my career beyond the classroom." (Teacher A)

Moreover, the results indicated that the quality of teaching is very important and the event maintained and enhanced this quality. Specifically, teachers mentioned that the event explored students' knowledge and enhanced the feeling of responsibility and their democratic consciousness with regards to environmental problems. The following quotes are representative:

"Also, I have to say that the event explored students' knowledge and learning providing new learning opportunities outside the classroom. I think this is very important." (Teacher B)

"The event enhances the feeling of responsibility and democratic citizenship for students inside and outside the classroom". (Teacher C)

Encouraging of young people into science

Some important issues were raised by teachers about the possibilities of encouraging young people into science. For a start, one teacher stated that students have the opportunity to participate in activities concerning the environment and their quality of life, proposing ways to contribute and to gain knowledge on the subject. More specifically she reports the following:

"The students undertake the initiative to propose ways and to participate in activities that contribute to the reforming of the natural and artificial environment of the school as well as their quality of life in general." (Teacher B)

Furthermore, another interesting result which concerns encouraging students into science is regarding their quality of life and skills development. Specifically, students and young people have the possibility to become better skilled in various areas concerning environmental sustainability. This is what they said in this regard:

"Students can identify the elements of the school environment that can affect their quality of life and try to recreate it and make a change." (Teacher E)

"They have the ability to acquire skills using new technologies, through discussion and communication, through critical thinking, and analysing data and information, with a result of formulating solutions related to environmental sustainability." (Teacher C)

Focus group results

Apart from the interviews procedure, the focus group method provided us with a lot of information and facts about teachers' involvement in this particular case study. In addition, it revealed a number of potential positive effects on actors (which in our specific case is teachers) as well as upon students of the school.

To begin with, the results revealed that teachers agreed that it improved the quality of their teaching through the use of all kinds of initiatives as well as learning new 'habits' of gaining knowledge such as the internet.

"I have to add that through the exploration of the internet our students were familiarised with new methods of learning". (Teacher E)

Yes, I agree with my colleague, our students went beyond the common textbook tool and were introduced to the internet and they discovered a new world full of knowledge". (Teacher B)

Secondly, three of the teachers who participated in our focus group stressed the fact that the coordination, guidance and implementation of the whole process gave them a lot of power and desire to be involved with such events and especially with events which promote students' environmental awareness and new ways of learning in various situations with regards to the environmental issues and sustainable progress.

Furthermore, creativeness with regards to the teaching profession was another distinguished revelation upon which teachers agreed. This kind of events

and in particular the specific one, gave them the ability to reboot their career with new learning methods leading their students beyond their classroom walls.

"The event was truly an amazing experience which helped me to visualise new ways of teaching my students". (Teacher B)

"Yes, I mean not only with textbooks and in the classroom…Now students can learn through the internet or through lively contributions like this particular event" (Teacher A)

"I agree, internet as well as active participation provides new ways of teaching and by extension, new ways of learning by our students". (Teacher D)

In other words, the focus group method raised some new potential areas for the actors of this particular case, meaning the teachers as well as the students. In particular, the focus group revealed that the teachers gained new ways of enhancing their careers, the positive networking between actors of different categories, as well as positive feedback from the principal, in addition to the motivation for new and creative ideas to foster student learning.

Apart from that, teachers did mention the positive effects of these kinds of events for students' awareness, enhancing new learning opportunities beyond the traditional way of teaching in the classroom and in a more vivid environment through such events. In this particular case, an event on reforming the natural environment of the school had a direct result on improving environmental awareness and sustainable development.

Conclusions

In summary, the evidence is significant and indicates that these kinds of events do have powerful impacts upon students and educators in general. Based on these research results, there is strong evidence that this particular event is directly related to a behaviour which would ensure and improve the quality of life of students and the school population, contributing to sustainable development of the school and the local community, and focusing on important issues with regards to the environment.

In particular, all students proposed ideas about what they could do to solve environmental problems within the piece of land they adopted, in collaboration with their teachers, their parents, as well as the local community. Through these solutions, the students contributed to the reform of the natural environment of the artificial-social context of their school by converting it into a beautiful and creative space, and to which they added value with some environmental solutions like the use of recycled bins as well as the erecting bird feeder for their leftover food.

Moreover, the results appear to indicate the strong perception students have of a specified topic, in this particular case, the event for the recreation of a small piece of their school land. Students had the opportunity to realise that this event would be successful with a proper study design and implementation of specific practices by both themselves and with the help of their principal and teachers, and other external stakeholders such as their parents and the local community. Furthermore, all students realised that this event was an important factor in improving their quality of life, which is everyone's responsibility, individually and collectively.

Furthermore, it is likely that the event, as a successful project, played a vital role in the skill development of students. Specifically, all students developed skills of effective communication and cooperation with the entire internal and external team of stakeholders of the school, using them for this particular event, and as part of the implementation of the environmental policy in the school. Apart from that, the teachers of the school felt proud of their contribution, providing excellence in the quality of their teaching.

Finally, this study revealed that the school together with the local community and parents develops students' environmental awareness. This result can be compared with some previous research in this country (reference 10) where the

local community together with the strong collaboration with school organisations can develop students' environmental literacy and identity.

Recommendations

Two important recommendations emerge from the results of this particular research, encouraging the European Union as well as the politicians to adapt these recommendations both at a European level and in their local contexts.

First of all, we strongly believe that educational policies across European Union members should promote this kind of experiential and exploratory learning, where students and teachers are involved in activities and events which go beyond the traditional classroom teaching approach, fostering active participation, interaction and inclusiveness with regards to environmental issues and sustainable development as part of the science communication and scientific culture in general.

Secondly, school organisations across Europe should implement an integrated and interdisciplinary approach to environmental issues and issues relating to sustainable development, which would encompass the whole curriculum in a “gestalt” approach.

Finally, the interview module instrument, as provided by the PLACES toolkit, has proven to be a convenient and efficient means of assessing the impact of initiatives and policies within the area of science communication and scientific culture and was well received by all participants. The questions were of a general nature, and as a research team we do not feel the need to change any aspect in order to be adapted to the local context.

As a final word, we believe that the module, as translated into the national language, is sufficiently reliable to be used more widely in other similar research programmes and is therefore strongly recommended.

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