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# A sustainable future - the recent goal in education

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**Abstract**. Sustainability has become a serious goal of education, and the principles of sustainability have started to be integrated into the secondary education curricula. However, formal education rarely addresses this concept thoroughly and unfortunately students approach sustainability mostly at theoretical level. As a result, it is imperative that besides knowledge, students should be equipped with skills and behaviours to help them take the best decisions and further the best actions with a view to sustainability, to the benefit of the planet and of themselves.

Sustainable and green education initiatives represent a generous potential for teaching and ensures the degree of curiosity and satisfaction that students have become to lack nowadays when it comes to the classroom environment. Students make better acquisitions by means of "learning by doing" strategies and often their feedback after an interactive class is more than enthusiastic.

This article is the result of a gradual endeavour in introducing the principles of sustainability in the English class and further during the Green Week program in order to create positive behaviour acquired in an interdisciplinary environment. The experience is relevant for teachers of foreign languages who are interested in adding relevant content both to the curriculum and to the extra-curricular areas, with a view to economic, social, environmental and cultural development.

The article describes activities developed during the English classes as well as during the Green Week program with focus on the practical character and the integration of science within the foreign language environment.

**Keywords**: Sustainability; Green teaching; Innovative class.

## 1. Introduction

The system of formal education has rapidly changed and evolved in the last five years and within this context, the idea of sustainable education aims at equipping students not only with knowledge but mainly with the awareness that they have responsibilities to the planet. School provides students with knowledge about the world they live in while sustainable education enlarges the area of this task by creating positive attitudes towards the planet. School nowadays should aim at creating the skills and attitudes necessary to support a sustainable future, addressing the social, economic and physical environment (UNESCO, 2021).

Sustainable education is beneficial not only for students, but also for teachers, parents, community and society. It enhances social responsibility, by the awareness that social justice and equity must be protected. Critical thinking is developed and put into practice, by evaluating the multitude of aspects of a problem and thinking of more ways to solve it while choosing the most

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appropriate. Also, it draws attention to the importance of health and well- being. Furthermore, the practice of active learning, exercised in natural settings, develops skills needed in today's labour market, such as creativity, team work, and flexibility (Gherasim, 2024). Schools that introduce the concept of sustainability into their curriculum also develop projects and collaborate with the working community. Together with these, environmental awareness is raised, and students learn their roles and responsibilities.

In order to implement sustainable education in the school curriculum it is opportune to apply an integrated approach. Sustainability concepts may be easily tackled about both during the science lessons and in the social studies (Novo-Corti et al, 2020). Project -based learning, experiential learning, the use of digital tools and of digital resources enhance the accessibility of sustainable concepts into the learning process.

The benefits of an approach focused on sustainable education is beneficial to students, teachers and the society (Voiculet & Manole, 2023). It enhances critical thinking skills, educates patience and interest in inspecting the multiple aspects of a problem. It also raises environmental awareness together with educating the steps that should be taken in preserving and protecting the planet with responsibility. Besides responsibility towards nature, social responsibility is built, with a view to educational equity, community well- being and general social justice. Students acquire skills to solve problems, develop flexibility, creativity and benefit from an educational environment that is healthy and interested in the wellbeing of its actors.

Sustainable education represents therefore the concept that will shape the development of education in the future. By putting the new approaches into practice, establishing a permanent partnership with the community and by continuous improvement, education will be able to ensure the progress of the society.

## 2. Research methodology

This article describes the experience of introducing sustainability concepts into the classes of English and further during the Green Week Project. While it is generally expected that students that belong to the profiles such as Philology or Social Sciences may not embrace scientific activities, the conduction of experiments and research as well the study or the elaboration of documents other than those requested in the high- school syllabus for English, the response to the activities was more than enthusiastic.

2.1 Experiment: Extracting DNA from kiwi fruit

*2.1.1 Pre–experimental stage*

Deoxyribonucleic acid is found in the nucleus of cells and is responsible for storing the hereditary information of each individual. Through an experiment that anyone can do, this molecule can be determined.

The experiment consists of penetrating the membrane and the nucleus with the help of a solution of detergent, salt and water, thus releasing the DNA sequences (BBC., n.d.). A viscous liquid is obtained after filtration, made up only of those sequences. Alcohol, being light, captures some sequences, highlighting them.

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*2.1.2 Materials needed*

The materials required for the activity include 3 glasses, ethyl alcohol, a coffee filter, kiwi fruits, 4 teaspoons of water, 2 teaspoons of liquid detergent, and 1 teaspoon of salt.

*2.1.3 Experiment development*

The following steps outline the procedure for conducting the experiment to extract and observe the DNA from kiwi fruit.

- Step 1: Peel the kiwi fruit and mash it well in a food bag
- Step 2: Mix the water, detergent and salt in a glass.
- Step 3: Pour the solution of water, detergent and salt into the bag and mix them
- Step 4: Pour the previously obtained solution into a glass with a filter in it and leave it for approx. 20-30 minutes. A sticky white-transparent liquid will be obtained. This is the DNA of all the cells in the kiwi fruit.
- Step 5: After filtering, remove the filter and add a little alcohol, until the difference between the level of the liquid from step 4 and that of the alcohol (the latter has a lower density and remains on the surface) is about 1 cm, then wait another approx. 10-15 minutes.

The students will notice that the threads similar to spider web will rise and start to float. That is the DNA of a sequence.

2.2 Experiment: Lemon batteries

*2.2.1 Pre-experimental stage*

Lemon batteries generate electricity like other batteries, by transforming the chemical energy of the reactions that occur between the metal and the lemon juice into electrical energy (American Chemical Society, 2020).

*2.2.2 Materials needed*

The materials required for the activity include lemons, copper coins or nails, paper clips, connecting wires, and a voltmeter.

*2.2.3 Experiment development*

The following steps describe the procedure for conducting the experiment to measure the electromotive force generated by lemons.

- Step 1: Insert a coin into one side of a lemon and a paperclip into the other
- Step 2: Attach a connecting wire to the coin and the paperclip respectively and connect them to a voltmeter in parallel. The electromotive force is observed.
- Step 3: Group another lemon in series with the first lemon, connecting the coin of one lemon to the paper clip of the other. Connect the ends of the group to the voltmeter in parallel. The electromotive force of the group of lemons increases.

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## 3. Results

The experiments were easy to conduct in the classroom and the materials were easily available. Students performed the activities learning by doing and using integrated skills. Both girls and boys conducted the experiments successfully and they distributed the tasks among themselves in a balanced way. The instructions handed in were in English and the conversation during the conduction of the experiments was also in English. Students felt comfortable to work in a team and their self-esteem grew while understanding that they are capable of solving tasks in a domain that in not their top choice.

Figure 1. Extracting DNA from kiwi

Figure 2. Lemon batteries

## 4. Discussion

The majority of the jobs of the future will be interdisciplinary, combining more domains and interests. At the foundation of these jobs there will lay a combination of technical knowledge, entrepreneurship skills and interpersonal and social skills. Technology, work with intelligent devices will not only be the domain of those working in IT, but all of us will have to be able to use them. Knowledge from scientific domains, together with a way of thinking oriented towards task solving, flexibility, team work represents the requirements for many jobs specific to the present-day generation. The jobs of the future, no matter the domain, will require diverse knowledge and abilities.

## 5. Conclusions

Sustainable education creates real world experiences and combines different academic subjects in order to offer students a holistic perspective of the challenges our planet faces environmentally, socially and economically. Students should be able to connect different

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subjects and solve problems by collaborating and being actively involved. Experiential activities equip learners with the skills requested by the jobs of the future.

The foreign languages classes as well as programs such as The Green Week, represent opportunities of integrating sustainability key concepts into the curricula. As a result, all the actors involved in the educational act, students, teachers, parents, the society as a whole, will get a deeper understanding of topics and will be able to engage their particular skills and interests.

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