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INTERACTIVE ELECTROCHEMISTRY GAME: A SOCIO-EDUCATIONAL STRATEGY FOR ELECTRIC ENERGY SAVINGS

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ABSTRACT:
Modernity surrounds us with electronic devices and technological innovations, such as cell phones, among others. However, the growing need of man, his dependence and abusive use of these devices leads to an increased consumption of electricity in an attempt to maintain continuous access to them. This pushes us to discuss new ways of generating and saving electricity. This requires awareness and social education of the population. School is the ideal environment for this debate.
Keywords: Electrochemistry; Stacks; Energy saving; Didactic games.

JOGO INTERATIVO DE ELETROQUÍMICA: UMA ESTRATÉGIA SOCIOEDUCACIONAL PARA ECONOMIA DE ENERGIA ELÉTRICA

RESUMO:
A modernidade nos cerca de aparelhos eletrônicos e inovações tecnológicas, como celulares entre outros. No entanto, a necessidade crescente do homem, sua dependência e uso abusivo destes dispositivos leva a um consumo aumentado de energia elétrica na tentativa de manter o acesso continuo aos mesmos. Isto nos impele a discutir novas formas de gerar e economizar energia elétrica. Para tal, é preciso conscientização e socio educação da população. A escola é o ambiente ideal para este debate.
Palavras-chave: Eletroquímica; Pilhas; Economia de energia; Jogos didáticos.

INTRODUCTION

The project started in 2018 with observations made during the intervals of the EEEP Ícaro de Sousa Moreira. The problem was identified by observing students when they leave the classrooms leaving lights and air conditioning on for a period of 3 months.

After a qualitative analysis, it was thought what to do for an awareness of these students having an attention attracted and not obliged. The idea of not forcing that situation, but the certainty that it is better for everyone. So the first path was to work in the laboratory on an electrochemical cell made of recyclable materials. It is of great importance to feed this vision into students because it reminds them of subjects such as recycling of waste and energy saving.

For the advancement of the project, a game was created which is based on houses where they randomly have simple questions, but with a greater content that would be to raise awareness and teach the student about the awareness of what can affect the use too much electricity.
What is mainly focused on is that the students who participate, when they get the questions right, they gather materials and assemble a pile. Students are playing and interacting and at the same time increasing the empathy of Chemistry.

MAIN GOAL

Apply an interactive game based on the concepts of electrochemistry to raise awareness about the waste of electrical energy and reinforce the learning of the content.

METHODOLOGY

This is a field study of an applied nature, with exploratory and descriptive objectives and a quantitative approach.
The place was a state school of professional education, located in the outskirts of Fortaleza. Since 2018, it has been observed the lack of attention of students who leave the classrooms and leave the lights on and the doors open with the air conditioning working. A structured questionnaire-type instrument was initially applied to 50 students and education partners to save electricity through lectures.
Now in 2019 we perfected the work by creating the character called “Pilheco” added to an interactive game worked with the students. The objective was to inform the students and, through the game, to arrive at the end of the assembly of an electrochemical cell made with materials reused from the garbage.
In closing, students assemble teams of 3 components and present their knowledge in the chemistry class by developing their creativity.

RELEVANCE OF THE PROJECT

The idea of building a stack associated with a game aimed to work on interdisciplinarity in school education and reinforce the teaching-learning process together with students.
It is relevant to manipulate knowledge of electrochemistry and circuits in series in parallel with the preservation of the environment to generate a reduction in energy waste. The socio-

education of this student is to transform the theory of chemistry into practical application in everyday reality, performing interdisciplinarity with physics.

PROJECT/RESEARCH IMPACT

The use of containers such as plastic, aluminum cans, old wires that were previously thrown in the trash and the correct disposal of batteries brings positive social impacts in ensuring care for the environment.

The fact of informing and making students aware of the importance of saving electricity guarantees the fulfillment and full exercise of citizenship.

Since the beginning of the project in 2018, we have had an improvement from 4% to 76% in students' attitudinal behavior in energy conservation at school. Expanding the project and extending its effects to homes will reinforce the idea of energy savings.

SEARCH RESULTS

We have a reality that is being modified in our school. Awareness needs to continue so that students take this knowledge to their homes, sowing the idea of energy savings.

The reuse of plastic packaging, the use of discarded metals, help to raise students' awareness of recycling, respect for the environment and energy conservation.

The improvement of the project with the help of the game helps to work the information, and in the end an electrochemical cell is built in an interdisciplinary way with concepts of Chemistry, Physics and Biology.

FINAL CONSIDERATIONS

We have a reality that is being modified in our school. Awareness needs to continue so that students take this knowledge to their homes, sowing the idea of energy savings. The reuse of plastic packaging, the use of discarded metals, help to raise students' awareness of recycling, respect for the environment and energy conservation. The improvement of the project with the help of the game helps to work the information, and in the end an electrochemical cell is built in an interdisciplinary way with concepts of Chemistry, Physics and Biology.

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