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DEVELOPMENT AND ANALYSIS OF TECHNOLOGIES RESOURCES FOR CHEMISTRY TEACHING

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Abstract

The development and use of technological resources for teaching are presented more intense and different proposals have been reported in the literature. However, there is still a gap between the amount of resources available and the extent of their use. Among the reasons for this gap, the fact that the different resources are produced without considering its applicability and the target audience is highlighted. Given this fact, this project proposes the elaboration of an augmented reality application that will be evaluated by current and future teachers in order to optimize the technological resources produced and overcome obstacles to their use.

Key words:

Information and Communication Technology, Courseware, Chemistry Teaching.

Introduction

We can characterize Information and Communication Technologies (ICTs) as "the procedures, methods and equipment for the processing of Information and Communication".

In the educational context, several researchers say that the learning process can be more significant with the use of ICTs, such as applications of classes that use educational software and games, audiovisual resources, among other tools that may involve thematic problems.

However, even in the face of a scenario with many possibilities, the use of ICTs has not been adopted. The difficulty of access, the training of teachers or even the lack of resources that are effectively relevant to teaching are reasons for low utilization and research and dissemination is presented as a way to overcome this.

Therefore, this project aims to produce and evaluate technological resources with an emphasis on augmented reality.

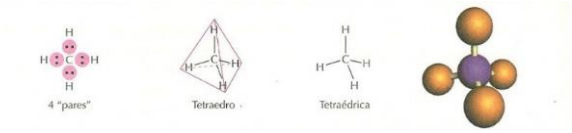
Results and Discussion

In front of this scenario, the project consists of an augmented reality application to unravel the different molecular geometries. Thus, the goal is to illustrate to users the molecular geometries from 3D visualization in augmented reality. The application uses as a marker a table with molecules represented by the molecular and structural form.

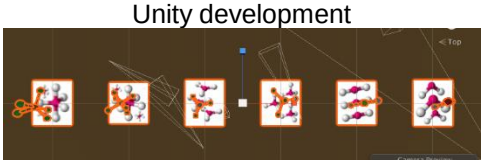
Considering the production of applications for educational purposes, the development process consisted of the following steps: i) planning a teaching proposal; ii) selection of materials; iii) application development; iv) app evaluation. For the development of the application, we used the tools Unity (program used to develop the application), Vuforia (library to be used in Unity to work with augmented reality) and MolView (to extract 3D models of molecules). The image 1 illustrates de development.

Besides the difficulty of idealizing a useful application for teaching, other technical difficulties must be faced. Among them, the main one is the modeling of the objects in 3D and the creation of the contents in the third dimension. The use of the application creation software, Unity, can also be considered a difficulty in creating.

Materials for class



Unity development



Application example

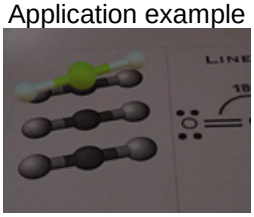


Image 1. Development sequence.

Conclusions

Even with the realization of this project, much can still be explored in the realm of augmented reality. Thinking about an application involving AR is a process that goes beyond the knowledge of computational resources. However, there will always be a clear need to look at teaching planning and the purpose for which the application will be produced, as well as the target audience and the evaluation mechanism.

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