

TITLE: Use of Microbiology multimedia and teaching materials for secondary students in schools of Belém City, Pará State, Brazil.

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ABSTRACT:

Microbiology is no longer a content taught only in the Biological and Health Sciences Under Graduation Programs, or scientific activities carried out in Research Institutes/Laboratories. The knowledge of the microscopic organisms is part of the curriculum of Natural Sciences and Biology, as well as in primary school. However, the superficial way in which Microbiology is dealt in schools, and the lack of connections to the daily life, makes the microbial world's understanding harder. The students' perception about it is in a sense abstract, since the schools do not provide the essential material and equipment for those practices, and this turns them unfeasible. This search aims to establish a discussion between students' body and teaching staff of Under Graduation Programs at the Federal University of Pará (UFPA) and students/teachers from high school, in order to socialize the knowledge acquired in teaching actions, and so the practical procedures related to Microbiology and the transversal issues Health and Environment. Two teaching-extension actions were carried out in two public schools in Belém city, Pará State. A third action was performed in the Biological Sciences Institute at UFPA. In every case, there were questionnaires used to evaluate the previous knowledge about the microorganisms, and a further one about the issues discussed. Lectures and other actions associated the Microbiology contents with diseases prevention, waterborne and foodborne diseases, good body and environment hygiene practice, environmental sanitation, and the diversity of microorganisms (viruses, bacteria and fungi). Amongst the practical procedures used in the multidisciplinary labs at the schools, the microscopic view of Gram stained slides stood out, related to the bacterial class, also highlighted in textbooks, in addition to video exhibitions, educational games such as "Eschericão", and the expo of interactive-tridimensional scale models linked to the Virology and Mycology content courses. The session's closure took place in the schools auditoriums, using an interactive quiz game at the *Kahoot!* platform. Teachers have evaluated as relevant these educational actions, the issues studied and the interaction among the under graduation students in the project and the secondary school students. In the evaluation process involving the questionnaires related to Microbiology contents (viruses, bacteria and fungi), it was possible to observe improvements in the learning process after the educational actions, especially concerning the *Kahoot!* game, which promoted active participation of the students in the discussion of issues involving microorganisms. The different strategies and resources used in this educational action were important for students motivation and are useful to teach Microbiology and stimulate raise the scientific knowledge.

Keywords: Microbiology. Teaching. Health. Environment.