

FP311. Bioinformatics in secondary education: from wishful thinking to reality

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A panoply of initiatives has been promoted in several countries to integrate bioinformatics in secondary education. These enterprises have been used as case studies to understand how bioinformatics may foster secondary students' scientific and digital literacy, their interest and attitudes, and identify the main constrains that are preventing teachers to implement bioinformatics exercises in the classroom. In our group a research is being carried out aimed to select, adapt, implement and evaluate a set of bioinformatics-based activities. Framed in this research, a portfolio of bioinformatics-based exercises was created and implemented in 14 classrooms, suitably supported by training courses for teachers and a webpage to provide teachers with didactic instruments and a communication channel. Students' assessment was carried out by a quasi-experimental study based on a pre-/post-test design, applying specifically designed surveys. A mixed methods approach was followed. Parametric tests for data assessment were complemented with non-parametric tests. For qualitative data, a content analysis was executed. Concerning teachers' assessment, informal observations were carried out in addition to a survey. Non-parametric tests and content analysis were performed. Insights on the data collected revealed that students are curious about bioinformatics and that there is an enhancement of their perception about the importance of bioinformatics to biological research. In addition, students' self-confidence to further explore bioinformatics resources is raised, and they admit that these activities improve their understanding of researchers' job, which emphasizes the citizenship education component of the activities. On their side, teachers revealed to be interested in bioinformatics, and recognize its importance and adequacy to the curricula. However, teachers pointed out reasons for not including bioinformatics in their educational practices, namely the scarce offer of training for teachers in this scientific topic, the lack of resources in schools, and the poor offer of bioinformatics activities curricular framed. Ultimately, by stressing the importance of basic bioinformatics learning to uphold secondary students as informed citizens in an increasingly digital society, this research is a wake-up call for educational stakeholders regarding the need to boost teachers' confidence in this subject and to provide the resources required to update their pedagogical practices.