POSTER - EDUCATION AND OUTREACH

EXPLORING THE USE OF BIOINFORMATICS TOOLS IN TEACHING GENETICS TO HIGH SCHOOL AND ELEMENTARY STUDENTS

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With the rapid advancement of technology, innovative and efficient teaching methodologies have become an increasingly popular means to stimulate student learning. By placing students at the center of the learning process and empowering them to take control of their own knowledge, these methods encourage experimentation and practical application of theoretical concepts learned in the classroom, promoting curiosity and creativity. In this context, bioinformatics, which is the application of computational methods to analyze biological data, has emerged as a promising tool for teaching genetics. Bioinformatics allows students to explore complex genetic concepts and gain a deeper understanding of the subject matter through hands-on, practical experience.The goal of this study was to evaluate the practical educational impact of using bioinformatics tools to consolidate genetics curricular content among high school and elementary students in a private school in Brasília, DF. The participants were aged between 15 and 17 and were given a pre-experimental questionnaire to evaluate their prior knowledge of the topic. To ensure a solid understanding of fundamental concepts before engaging in bioinformatics practices, the students were first given a brief orientation about important concept definitions. They were then able to engage in in silico

practices that utilized bioinformatics resources such as the genome database, ORFfinder, BLAST, and MaGe. Results from the diagnostic questionnaire revealed that the majority of students were unfamiliar with bioinformatics concepts and were unable to correctly define gene or genome. However, after engaging in bioinformatics practices, the students were able to gain a better understanding of genetics concepts, as evidenced by post-experimental questionnaire results. It is hoped that this methodology can serve as an innovative and efficient alternative for teaching genetics in schools and help to cultivate students' interest in science. By providing students with hands-on experience with complex concepts, bioinformatics can help students to better understand and appreciate the relevance of genetics in our lives. This study adds to the growing body of literature on the efficacy of bioinformatics as a teaching tool and provides a valuable resource for educators seeking to enhance their genetics curricula.