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Understanding the Microbiome through Personalized Learning

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With the necessity of online teaching becoming essential for many students and practitioners throughout academia, there has been a push for alternative methods of participation and inquiry-based learning. This activity was designed so that students could perform an experiment at home using every-day supplies, and then critically analyze their results using peer-reviewed literature. Students prepared growth medium and sterilized equipment using supplies at home. The materials needed were designed to be accessible to students with varying resources, located in different countries around the world. They then proceeded to swab their skin and collect observations on the resulting microbial growth. This is a self-directed experiment designed to be accessible to all students. It is well documented that students can engage more with a subject matter if they can relate to it and understand its importance. In this project students compared information collected regarding their skin and microbial flora to peer-reviewed literature to better understand their own microbiome and potential sources of acne and eczema. This project was a unique success as it gave students the agency to create microbial medium, observe culture growth, establish conditions for growth and then extrapolate knowledge and information from that. This self-directed, accessible and inquiry based task is optimal for a microbiology course requiring laboratory experience without the space and materials available in a university laboratory.

Keywords: microbiome, at-home, microbiology, inquiry-based learning

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