
On the Path to “Positive Microbiology”

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KEYWORDS IMiLi, International Microbial Literacy, Ken Timmis, microbiology education, paradigm shift, positive microbiology

LETTER

Germ and microbes commonly have a negative connotation and are often associated with infection and diseases, even more so since the 2019 coronavirus disease pandemic. The media often portray germs as something to be feared and eliminated, perpetuating a “germophobic” mindset, and a focus on microbes’ harmful effects, while overlooking their potential benefits. Advertisement for germicidal home and personal products further fuel the fear of microbes. However, microorganisms play crucial roles in our everyday lives. People would not be able to enjoy a glass of wine or a bite of cheese, and agriculture, breweries, biotechnology, and many other industries would not exist without microbes. Yet, these critical and very beneficial roles that microbes play are often overlooked and not clearly communicated to our students and the general public, which adds to the myth of microbes as always being the “bad guys.” As Timmis has been successfully communicating over recent years, an improved education and communication program highlighting the critical roles of microorganisms is urgently needed (1). I wholeheartedly agree with Timmis’ most current editorial in the *Journal of Microbiology and Biology Education* (2) in that a paradigm shift in microbiology education is a critical need.

To enable, facilitate, and ensure this paradigm shift will happen, we should move our focus to a new concept, namely, “positive microbiology.” Just as positive psychology focuses on the study of positive emotions, human strengths, and well-being (3, 4), positive microbiology would focus on the study of beneficial microorganisms and their roles in human and animal health, agriculture, biotechnology, and the environment. We should teach everyone—children, students, teachers, and citizens all over the world—about the positive aspects of microbes and their potential to make the world a better place, separately from teaching about pathogens and diseases.

As microbiologists, we know how important microbes are and the role they play in our everyday lives. However, we need to communicate and teach this knowledge effectively to the public through outreach activities, exhibits in museums, books, and documentaries. We should especially make it a cornerstone of all K–12 learning standards and especially of our college and professional school curricula. This concept needs to infiltrate and be added to all textbooks for all students. By embracing positive microbiology as part of our strategic communication, we can empower our children, our students, and fellow citizens to become microbiology-literate educators, leaders, and change-makers to make the world a better place with the help of microbes.

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The author declares no conflict of interest.

Published: 6 June 2023