A hands-on ecology experiment at home: The benefits of a take home experiment post-pandemic

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Online learning became the staple during the Covid-19 pandemic, reducing the opportunity for hands-on learning that enhances students' engagement, curiosity and critical thinking. This motivated us to redesign a simple and fairly inexpensive ecology abiotic factors experiment that students could complete safely at home. The new design had students study the effect of three experimental groups and a control group on Raphanus sativus var. longipinnatus, a commercially available Daikon variety of radishes. Students were responsible for choosing the general theme of their project according to their individual interests and the supplies readily available at home. Their experimental design was submitted for evaluation via a detailed research proposal where instructors assessed the feasibility and the safety of the project. Before starting the procedures and manipulations at home, the students had to complete a full hazard assessment of their experiment and complete a short guiz that confirmed and acknowledged that the experiment would be safely conducted and completed under the conditions mentioned in an institutional legal document and their research proposal. Germination and stem length were the main quantitative observations that were compiled but leaf color, root length and stem tonus were also frequently observed. Students presented their findings in a scientific poster on a forum of our course management system. The originality of the projects were found to be far superior than the ones usually completed in the lab, as the students were not limited by a fixed temperature, light cycle and water uptake.

Keywords: take home experiment, ecology, abiotic factors, limitations

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