Pearson

Pearson Interactive Labs

Spotlight on: Pearson Interactive Labs for Non-majors Biology

Reimagine the online lab experience for non-majors biology courses with real-world scenarios and guided feedback that help students develop the lab skills they need, plus an easy-to-navigate interface for learners and instructors.

In Fall 2021, Pearson conducted three instructor interviews and surveyed 50 instructors and 313 students across the United States to gain a better understanding of their experience with, and perceptions of, Interactive Labs. Through this work, we found Interactive Labs facilitates active participation in learning, aids in the understanding of the scientific process, and conveys biology topics in a way that has real-world relevancy.

Understanding the process of science

The interactivity of the labs fosters a deep understanding of how science works, according to Katie Johnson, instructor at Collin College in Frisco, TX. Instead of only relying on memorization, which doesn't connect students meaningfully to the concepts, Interactive Labs gives students multiple questions, interactives, and data throughout the entire lab, allowing students to better understand the process of science.

> "I like how Pearson has graphs and results that students analyze and get instant feedback on. They are not just making a hypothesis; they are picking variables. They are also going back and reassessing. I think it shows science as a process."

"There are actual results and data students have to analyze and then relate to their hypothesis. I think it helps bring the whole thing together to make it more comprehensive. They actually understood it more in terms of completing an experiment, why they were

doing it, and what they thought might happen based on background information and how they analyzed it."

When compared to other online labs used by Mark Manteuffel, instructor at St. Louis Community College in St. Louis, MO, he feels Interactive Labs more effectively demonstrates the process of science in a way that resonates with students. Mark said "Interactive Labs does a really good job of presenting a relevant, real-world scenario and having students use the process of science as they are guided through the scenario. Competitor labs that I have used have been okay but did not stress the process of science as well."

Finding an online lab that caters to both science majors and non-majors is of utmost importance to Amy Helms, instructor at Collin College in Frisco, TX. After piloting Interactive Labs, she finds her goal of making biology accessible and relevant for non-majors is achieved, but it is also a lab that is more detail oriented, giving majors students the knowledge to successfully progress academically.

> "In my majors class the goal is oftentimes more about understanding foundational concepts that they're going to use in other classes, as well as the molecular details of biology. That's why I am super excited to use Interactive Labs in that class more extensively because it bridges that really well. It makes biology more relevant and interesting, but also gets down to the detail of things."

The majority of instructor survey respondents agree that Interactive Labs is a good fit for non-majors biology students with 86% stating they believe those students would find it engaging.

Real-world relevancy

Oftentimes students disengage with labs that they feel don't apply to them. Helms finds this lack of engagement with both her majors and non-majors students. With Interactive Labs for Protein Structure, she is excited to finally offer them a lab that encourages their participation.

> "I like that Interactive Labs has a topic that is relevant to the student. When you have some random experiment using a model system that they've never heard of, it just doesn't engage them at all. It's some weird thing, they don't really care about it, and it doesn't resonate with them. With Interactive Labs, the topics are relevant to them."

For non-science majors, Johnson believes it's most important for them to understand how science is applicable in their lives. She notes how the pandemic has made this more pertinent than ever before. She feels students need to understand what data is, what it means, and that analyzing it is a process rather than an opinion. The relatable topics and applicability of content found in Interactive Labs are the contributing factors in her decision to continue implementing the labs in the future.

"The reason I like the Photosynthesis Interactive Lab is because a lot of people garden, whether it's to grow their own food or have house plants. How is photosynthesis going to help? They can literally use it in their daily lives, whereas I feel some traditional labs and content, students think they're never going to use the information. For non-majors, they're thinking, why do I need to know this? With Interactive Labs they are much more engaged."

Results from the instructor survey indicate they also consider Interactive Labs a viable option for labs going forward with 90% of responding instructors saying they would assign the lab as a replacement, as a pre-lab activity, or as a post-lab follow-up.

Active participation

With the goals of educating his non-majors students in the process of science and understanding the relevancy of science in their own lives and society, Manteuffel feels Interactive Labs helps his students achieve these through active learning, which in turn helps them build foundational knowledge of biological concepts.

"Having students engage with material is far more effective than simply lecturing, and these active engagement lab activities will allow students to more deeply and meaningfully engage with course topics... I think this active engagement enables students to build their understanding of biology."

The engagement that accompanies content with real world-relevancy has led to students becoming much more invested in what they are learning in the Interactive Labs, notes Johnson. She feels this connection to the content has translated into increased comprehension.

> "With Interactive Labs, students feel like they are part of the process. Because it is relatable, they are interested in it. They are more likely to actually read the content, pick a legitimate answer and not just click, click, click. They want to participate in the labs, and I think comprehension just naturally follows when they are engaged."

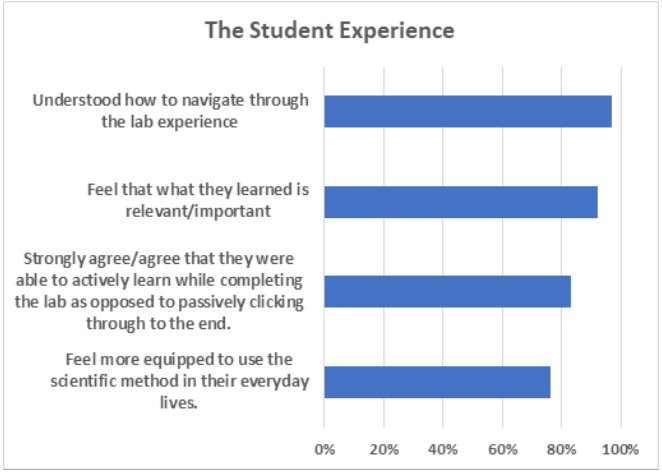
The majority of surveyed instructors agree with Johnson that students actively engage with the content and participate in their learning throughout. This agreement is evidenced by the fact that 86% of surveyed instructors strongly agree or agree that Interactive Labs help students actively learn as opposed to passively clicking through to the end.

Helms has lectured about protein structure for many years, never having an associated lab. She found students were interested in the topic, but they had a hard time grasping the concept through lecture alone. After implementing Interactive Labs, she sees how it allows students to participate in their learning rather than just clicking through the program passively, not absorbing the concepts. Not only does the lab fit within her lecture and teaching sensibilities perfectly, but the way it is laid out to students aids in their engagement.

"The Interactive Lab was so intuitive, and the topic was one I always talked about in class because it seems to interest students. So, to already have this in my lecture and to find a lab that shows them the science behind it is awesome. Then to have it be so smooth, I am just super excited about it.

The student experience

In Fall 2021, 316 students across the United States completed a voluntary, end-of-trial survey, indicating the majority of responding students recognize the value of Interactive Labs. Specifically, the bulk of responding students feel they understand how to navigate Interactive Labs and that it has relevancy in their own lives. Survey findings also show most responding students feel they are able to actively participate in their learning when completing the labs, as well as have a better understanding of how to implement the scientific process in their everyday lives.



Student survey comments regarding their experience with Interactive Labs include:

"It was an interesting lab that could be applied to today's situation and applicable to the real-world."

"The lab was very detail-oriented, so it made me focus on and remember the elements like the creation of a thorough hypothesis, mitigating error, etc."

"I loved how the digital effects were very new, interactive, and modern looking. The step-by-step process made it manageable."

"I really loved how interactive the lab was and how it felt like I was completing it in person even though I wasn't. I feel like this would be extremely beneficial for students who are not in in-person classes."

Learn more about Pearson Interactive Labs for Non-biology Majors

Learn more about how Pearson Interactive labs could benefit your course by visiting:

https://www.pearson.com/us/higher-education/products-services-teaching/learning-engagement-tools/PearsonInteractiveLabs/overview.html