Introductory Physics Labs: A Tale of Two Transformations

Steven F. Wolf, Mark W. Sprague

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1 Introduction

Here we set up the rationale behind our initial transformation, specifically, we wanted our labs to engage students in Scientific Practices. Then, when COVID came here, we didn't want to lose the progress we made with this transformation, so we describe our need to develop an online curriculum that accommodates our students while duplicating many of the face-to-face elements that we found essential to this curriculum.

2 Instructional Context

- Institutional profile.
  - Student gender and demographics
  - University environment: rural, many communities without high speed internet
- Describe student population in labs/lecture courses served. Our lab sequence is at the intro level, serving both Algebra-based and Calculus-based physics lecture courses.
- Compare course demographics with university demographics.

3 Transformation #1: Argument Driven Inquiry

Brief lit review of Argument Driven Inquiry (ADI), including some of our prior work (PERC 2019 proceedings paper). Describe the stages of ADI and how we implement them.

4 Transformation #2: Online Adaptation

How did we adapt the ADI curriculum to online formats?

- Stage 1: Finishing Spring 2020 semester online
- Stage 2: Fall 2020 and beyond - lab kits

5 Conclusion

We plan to highlight some of our successes and challenges that we have encountered, as well as discuss our outlook for online labs in a post-pandemic world.