

The Lasting Impact of IPLS on Student Interdisciplinary Attitudes

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Research Question

A year or more after instruction, do IPLS students **continue to view** physics as more *relevant to* and *connected with* their life science coursework?

IPLS (Introductory Physics for Life Sciences)

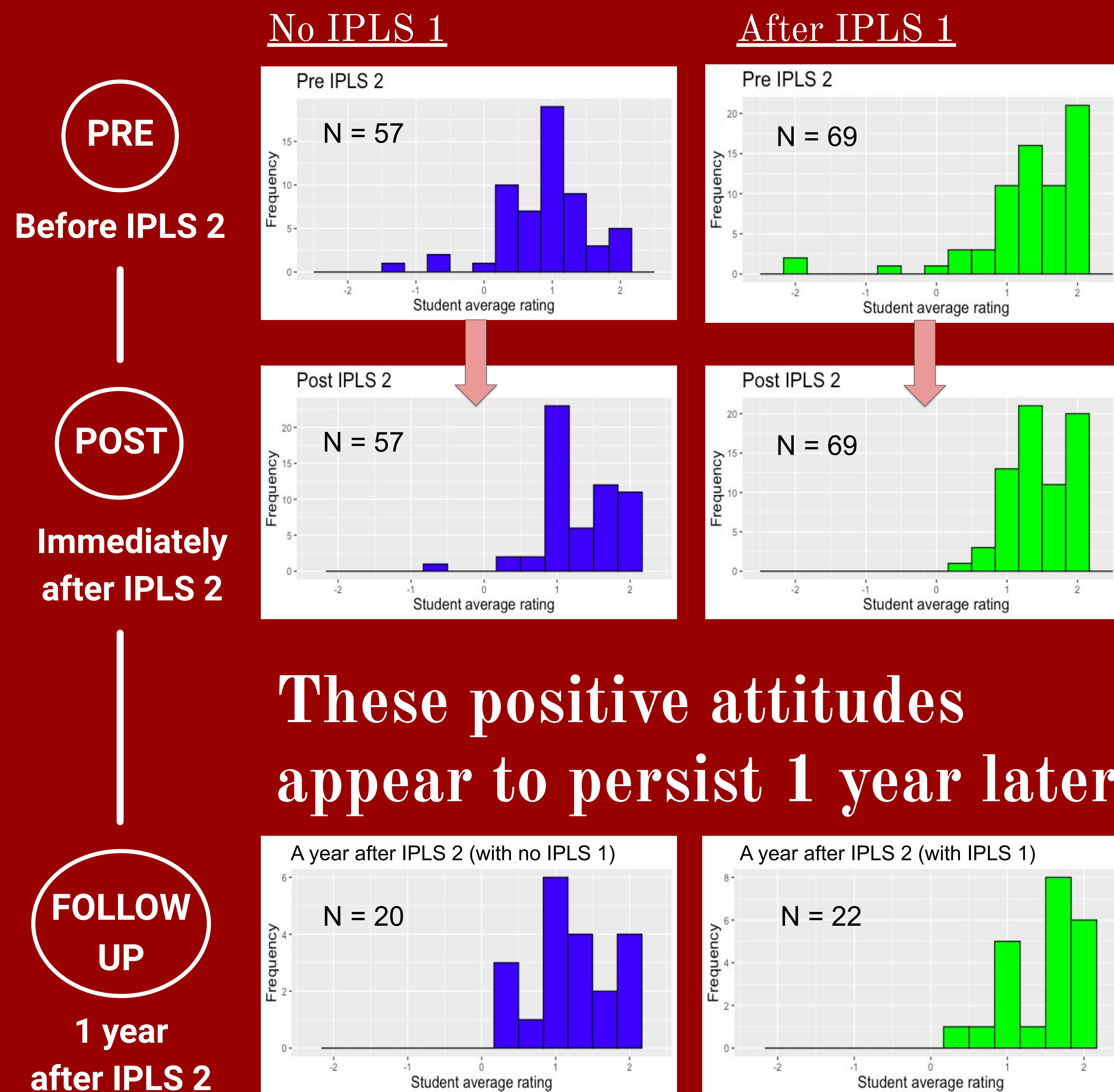
IPLS courses: intro. mechanics and E&M courses designed to enable and *motivate* future physics use in the life sciences and medicine.¹

- Previous research shows² IPLS improves general attitudes about physics.
- We assess interdisciplinary attitudes, and introduce a follow-up 1 year later

Data Source: Interdisciplinary Attitudes Survey

1. Students presented with statements³ about the **relevance of physics to biology**:
 - *It will be beneficial to me, for my chosen field of study or career, to be proficient in physics*
 - *Physics helps me make sense of biological phenomena*
 - *Physics is largely irrelevant for understanding biological processes*
2. Respondents agree/disagree on 5 point Likert scale
3. Responses converted to values of -2 (strongly unfavorable) to 2 (strongly favorable)
4. **Averaged responses on 3 statements for each student**

Student attitudes about the relevance of physics to the life sciences improve after IPLS instruction

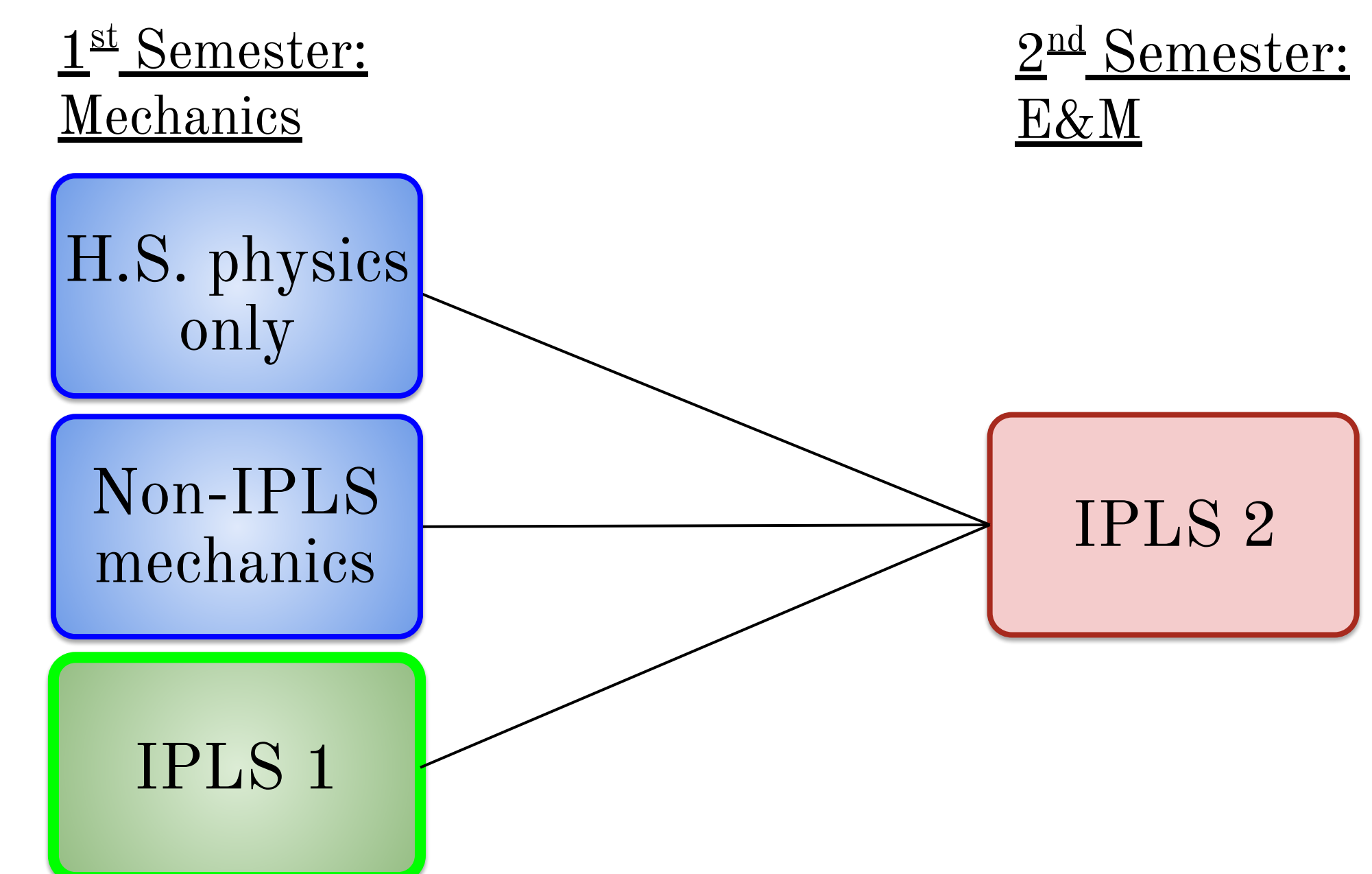


Populations

We surveyed students before and after IPLS 2 (E&M).

As shown below graphically, students entered this course from any of:

- High school physics only
- Non-IPLS (traditional) mechanics
- IPLS 1 (mechanics)



Ongoing Work

We are performing analyses to determine if the students who completed the follow-up are representative of the larger study population.

References

- ¹ C. H. Crouch & K. Heller 2014; E.F. Redish & D.C. Meredith 2013; E.F. Redish et al. 2014
- ² C.H. Crouch et al. 2018; B.D. Geller et al. 2018
- ³ K.L. Hall Ph.D thesis 2013

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See my accompanying AAPT talk here for more info:
<https://materials.physics.swarthmore.edu/sm2020>