

Physics Education Research and Human Subjects: The PER Community and Institutional Review Boards

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Abstract. This workshop was a discussion among participants about human subjects and Institutional Review Boards (IRBs) and dealt with the following questions: (1) What are the important human subjects issues facing physics education researchers? Do few, many, or most PER projects raise issues of confidentiality, liability, withholding of learning, differences in grading policy, impact of the student lack of informed consent, or other ethical issues? (2) Should PER physicists at each institution create a common IRB form to be used by all PER researchers at that institution? (3) Should the PER community as a group address the IRB issues as a community? If so, what might the outcome be? (4) Should all PER research be exempt from IRB approval, given the extreme unlikelihood of student physical or emotional damage? How could such global exemption be achieved?

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I. INTRODUCTION

Because of federal regulations, Physics Education Research (PER) is subject to Institutional Review Board (IRB) oversight over use of human subjects. The regulations addressing human subjects are mainly concerned with medical research issues. Most PER researchers are mainly concerned about students and their learning, which overlaps little with ethical concerns of medical research.

This issue catapulted to public consciousness recently because of both local conditions (for example, a revolt of faculty in the College of Social and Behavioral Sciences at Ohio State) and because of the recent editorial in *Science* magazine [1]. The authors of Ref. 2 state that “Our IRB system is endangered by excessive paperwork and expanding obligations to oversee work that poses little risk to subjects. The result is that we have simultaneous overregulation and underprotection.” They go on to say “IRBs’ burdens have grown to include studies involving interviews, journalism, secondary use of public-use data, and similar activities that others conduct regularly without oversight. Most of these activities involve minimal risks—surely less than those faced during a standard physical or psychological examination, the metric for everyday risk in the federal regulations.”

Participants in the workshops discussed these

issues extensively and shared stories from their respective institutions. Below, we outline the results of the discussions concerning the questions given in the abstract

II. WORKSHOP DISCUSSIONS

What are the important human subjects issues facing physics education researchers? This question was reinforced for me after I was named to a subcommittee of Ohio State University’s Research Committee and I discussed these issues with PER colleagues. Various subsequent discussions with other colleagues gave rise to this workshop.

At the end of the workshop, participants shared their conclusions with the entire group. After general discussion, it is fair to say that there was consensus on most issues discussed. Overall, it was clear that most PER projects should be exempt, but that having the possibility of the IRB could be constructive.

What was striking from the discussions was the variability of application of IRB rules (presumed identical) across institutions. A common complaint involved prescribing a human subjects form as necessary for proposing funding of research. One group said that it “takes far too much time to do a report for every grant you write but don’t get funded for,” and most agreed. It was found that some

institutions regarded these proposals as *pro forma* (one participant said he was able to work around things so that none of his research involved an IRB) and others faced the unleashing of a battery of barriers.

(1) What are the Important Human Subjects Issues facing Physics Education Researchers?

Workshop participants generally agreed that PER does not raise issues of confidentiality, liability, or unfairness in comparison to the “standard” instruction. Most don’t believe in giving grades as part of PER projects: for example, how equal is it to grade problems phrased differently the same way? As long as a student is not receiving less than “standard” instruction, there was no problem seen in forming treatment and control groups even if the researcher believed PER instruction was better.

Participants thought that pre- and posttests did not involve any serious confidentiality issues as opposed to someone who gathered data for assessing the department’s teaching, where it might be good to have the protocol be reviewed.

Informed consent protocols were not seen as really useful; they can induce student and parent anxiety for no reason.

While liability issues cannot be entirely ruled out in a litigious society, most participants did not think that this was a major issue in most research. Confidentiality could become an issue when there are very few students in a class, and it was thought that such a case would benefit from IRB oversight.

(2) Should PER Physicists at each Institution create a Common IRB Form to be used by all PER Researchers at that Institution?

Most participants thought that the PER community should be far more collaborative than at present; it would be good to have IRB boilerplate documents available for everyone at various institutions to use. One problem with this is the “not created here” syndrome. Examples from multiple institutions could still be extremely useful in helping individual PER researchers. One participant has a list of “taboo” words; sharing this sort of information widely can be useful. These could be put on CDs or could be web documents, whatever the community wants.

Graduate students and faculty who are being prepared to do PER definitely need to know about IRB issues before they begin their work. Perhaps the

community could develop a research ethics “course” framework.

Although forms might be different at differing institutions, to have an agreed-on mission statement can make a wonderful cover letter. There’s no probability of harm in having that information available.

(3) Should the PER Community as a Group address the IRB Issues as a Community?

Bearing in mind that institutions’ IRBs are different, participants did not think it would be possible to develop a “magic” form that all would accept. It was thought that there could be a community statement that in general this research is used to improve teaching and learning and did not fall under non-exempt research except under a certain set of categories. Such a community statement to this effect to attach to an individual IRB could be very useful. It is possible that there *is* no consensus: the community hasn’t been able to build consensus on other things. Some suggested that Physics Education Research Leadership and Organizing Council (PERLOC) should address this issue by putting up a standard document.

The PER community could advocate for conversion of IRB’s image and reality from that of the current watchdog/enforcer to that of resource/aid. If the community uses its leverage, it was suggested that it could get the review boards to pay attention.

Two groups suggested that we should reach out to other disciplinary education research groups. If a researcher can say the human subjects treatment complies with national standards, it will be useful.

(4) Should all PER Research be Exempt from IRB Approval, given the Extreme Unlikelihood of Student Physical or Emotional Damage?

There was a lot of discussion on this question. The groups had varying answers to the question. Here are their thoughts:

“No, but approval should be fast, easy, and almost automatic for research that fits certain standard, common types and obeys accepted standards and protocols.”

“No. . . A list of practices or ethical issues would be useful.”

“NO! Pragmatism is the reason (it just can’t happen);” this group was worried that PER would “attract people who are unscrupulous or whose research goals don’t match the community to come

into the community; this one bad apple could spoil it for everyone.”

“Qualify this to apply to the CATEGORY of exempt research; this is preexisting at some institutions—research is exempted by category.”

“Yes, but ... it probably wouldn’t fly with the individual institutions.”

“For normal class activities, it should be exempt; all others should be ‘expedited’ with informed consent forms. A defined list of okay things would be very useful.”

“Yes, but we didn’t have great ideas.”

“Yes, but we weren’t sure what outcomes would be.”

III. WORKSHOP CONCLUSIONS

Human subjects paperwork was not seen in a positive light by workshop participants, but a nuisance (except in rare cases, when they were really needed). To quote once again from Ref. 1, “All this has generated a trend in which researchers increasingly think of IRBs as the ‘ethics police.’ In fact, all researchers must take primary responsibility for professional, ethical conduct. Our systems should reinforce that, not work against or substitute for it; the IRB should be a resource, not the source, for ethical

wisdom. All compliance systems require the buy-in and collaboration of the regulated, and it will be a sad day if scholars come to see human protection in research as the source of frustrating delays and expensive paperwork.” This latter view appears to be already quite common within the PER community.

Workshop participants were united that these IRB issues be considered soon by PERLOC and the American Association of Physics Teachers’ PER Committee. The possibility of a useful community document setting standards for categories of semi-automatic exemption in education research is very attractive and can be potentially useful.

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