

Abstract Submitted  
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**An analysis of the effect of activity based instruction on the persistent misconceptions of physics students**<sup>1</sup> EMILY REISER<sup>2</sup>, MARK MARKES, University of Nebraska-Kearney — Studies have indicated that student misconceptions negatively impact the effectiveness of physics education. Research has also indicated that activity based instruction (ABI) has greater effectiveness than lecture based instruction (LBI) in many applications. It is natural to define a persistent misconception as the same wrong answer, for a given question, on pre and post evaluation tests. However, in practice, it is not possible to directly examine the impact of ABI on persistent misconceptions defined in this way because students cannot be returned to their pre-instruction state and re-instructed using ABI. In this paper an indirect method of determining the effect of ABI on persistent misconceptions is presented using the FMCE as an evaluation instrument. The unique feature of this analysis is the use of the occasional right to wrong responses as indicators of the change in probability for wrong to different wrong responses. Given this change in probability it is possible to determine the change in probability of wrong to same wrong responses: i.e. persistent misconceptions. The details of this analysis will be presented in the paper.

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