**Increasing Student Engagement in Introductory Online Physics**

Breanna Epperson, Dr. Kent Price

Department of Physics, Earth Science, and Space Systems Engineering, Morehead State University, Morehead, KY, 40351

 The demand for online instruction is on the rise. In a classroom setting, research shows that student interactions are important for overcoming common misconceptions, but it is challenging to achieve the same level of engagement in an online setting. To try to improve online interactions in an online physics class at Morehead State University, the Fall 2018 and 2019 online classes were required to post a total of three times about a conceptual physics question in each assignment while following certain criteria. Doing so increased the percentage of students who responded to another student’s answer and changed their final answer. This led to an increase in the percentage of students who answered the questions correctly compared to previous classes. Improvement on a national standardized conceptual test was also measured. This test is given at the beginning and the end of the semester and measures the improvement, or gain, of the class. The gain from previous classes and the online class were compared to see if changes that were made had a positive impact on the students’ learning. The gain on the standardized assessment for the Fall 2019 class was 0.49 which is a significant improvement from the classes which were only required to state their answer and explanation (0.21 and 0.19). However, after statistical analysis was performed on the demographics of the students, it showed that there was a significant difference in the students’ GPAs and their math ACT scores. This may have been a cause for the large gain.