**Blende Learning innovations “Linear Motion” use STEAM, Physics Project, and** **Young Physicists’ Tournament for the High School Students Level 4**

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**Abstract**

Technological advances are rapidly changing the education of high school students. The teaching methods or learning management is focused especially on reform education of current and future educators. The blended learning “linear motion” helps to solve teaching and learning problems in the current situation with the COVID-19 pandemic. Students have the opportunity to study the management innovation manual learning by themselves to study the physics content applied in physics projects and the young physicists’ tournament at regional and national levels. The results showed that students of special classes of science, technology, mathematics and the environment high school level 4 in Thatnaraiwittaya School have higher learning outcomes than those who did not use innovation. The efficiency of the tool according to the module efficiency statistic according to the E1/E2 criterion of 77.30/78.08, which was lower than the specified criterion of 75/75. When comparing the differences in the learning outcomes of the test before and after using the innovation manual by using the t-value test statistics. It was found that after learning from the innovation manual, the learning achievement was significantly higher than before at the 0.05 level. The knowledge was completely applied in physics project work, resulting in the award of a national gold medal from the National Research Council of Thailand. Some of the students in the sample group were able to represent them in the young physicists’ tournament, winning a silver medal at the Northeast level. Moreover, research has been published in both national and international journals.

**Keywords :** Learning management, Teaching methodologies, Physics education, Learning innovation, Teaching innovation