Abstract

Teacher plays an important role in guiding students to reach high values of merit, ethics and academic knowledge. Both adequate significant knowledge and positive expectation of pre-service teachers are necessary. The purposes of this study are to investigate the pre-service physics teachers' conceptual understanding of forces and motions using the Force and Motion Conceptual Evaluation (FMCE) test, to explore physics learning expectation of the pre-service physics teachers using the Maryland Physics Expectation (MPEX) survey, and to find out the linear correlation between the conceptual understanding and the physics learning expectation of the pre-service physics teachers. Results showed that most pre-service physics teachers have been concreted of alternative concepts of forces and motions, for instance, they believed that for a moving object there is always a non-zero net force acting on the object. The force direction is proportional to a velocity direction. When an instantaneous velocity of the object is zero, they claimed that the acceleration is zero. For the physics learning expectation of the pre-service teachers, it was found that most differed from the experts' expectation. Ultimately, there is no statistically significant correlation between the pre-service teacher expectation and the force and motion conceptual understanding analyzed by the Pearson-r correlation coefficient. From what we found we suggest that the developing of teaching and learning process for the pre-service physics teachers, on the topic of forces and motions and other related concepts, to improve both concepts and expectation, is need.