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Evaluation of Thai students and teacher's attitudes in physics using Colorado Learning Attitudes about Science Survey (CLASS)

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The Colorado learning Attitudes about Science Survey, CLASS, has been used as a tool to measure respondents'beliefs or attitudes about physics and how they learn physics. It is composed of 42 Likert scale (strongly disagree to strongly agree) type questions which is classified into 8 categories, which are real world connections, conceptual connections, personal interest, sense making, applied conceptual understanding, problem solving general, problem solving confidence and problem solving sophistication. In this study, we asked 196 high school physics teachers and 211 students from 195 secondary schools in Thailand to respond on this survey along with a 6-open-ended-question survey. In this work, we focus on two topics: "What is the difficulty in learning/teaching physics?"and "What is the goal in learning/teaching physics?". We found that physics teachers agree with the experts in most categories, except conceptual connection, applied conceptual understanding and problem solving sophistication. While students tend to disagree with the experts in both conceptual categories and all three categories in problem solving. We then compare teachers'to students'responses from these two open-ended questions. On the difficulty aspect: 19% of students believe that difficulty in learning physics is due to incomprehension of physics concept. While 43% of teachers thought that difficulty in teaching physics is because of insufficiency of mathematics background. On the goals aspect, 37% of students aim to enter the university; while 50% of teachers target on helping student understand physics.

Authors: SUWONJANDEE, Narumon (Department of Physics, Faculty of Science, Chulalongkorn University, Bangkok 10330, Thailand Center of Excellence in Physics, Commission on Higher Education, 328 Si Ayutthaya Road, Bangkok 10400, Thailand); Dr ASAVAPIBHOP, Burin (Department of Physics, Faculty of Science, Chulalongkorn University, Bangkok 10330, Thailand Center of Excellence in Physics, Commission on Higher Education, 328 Si Ayutthaya Road, Bangkok 10400, Thailand)

Co-author: MAHACHOK, Teewin

Presenter: SUWONJANDEE, Narumon (Department of Physics, Faculty of Science, Chulalongkorn University, Bangkok 10330, Thailand Center of Excellence in Physics, Commission on Higher Education, 328 Si Ayutthaya Road, Bangkok 10400, Thailand)

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