

## Monitoring and Evaluation of Master Science Trainee Educational Students to their Practicum in Teaching Physics for Improving and Creating Attitude Skills for Sustainable Developing Upper Secondary Students in Thailand

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**Abstract :** This study focuses on investigating students' perceptions of their physics classroom learning environments of their individualizations and their interactions with the instructional practicum in teaching physics of the master science trainee educational students for improving and creating attitude skills' sustainable development toward physics for upper secondary educational students in Thailand. Associations between these perceptions and students' attitudes toward physics were also determined. The learning environment perceptions were obtained using the 35-item Physics Laboratory Environment Inventory (PLEI) modified from the original Science Laboratory Environment Inventory. The 25-item Individualized Classroom Environment Questionnaire (ICEQ) was assessed those dimensions which distinguish individualized physics classrooms from convention on individualized open and inquiry-based education Teacher-student interactions were assessed with the 48-item Questionnaires on Teacher Interaction (QTI). Both these questionnaires have an Actual Form (assesses the class as it actually is) and a Preferred Form (asks the students what they would prefer their class to be like - the ideal situation). Students' creating attitude skills' sustainable development toward physics were assessed with the Test Of Physics-Related Attitude (TOPRA) modified from the original Test Of Science-Related Attitude (TOSRA) The questionnaires were administered in three phases with the Custer Random Sampling technique to a sample consisted of 989 students in 28 physics classes from 10 schools at the grade 10, 11, and 12 levels in the Secondary Educational Service Area 26 (Maha Sarakham Province) and Area 27 (Roi-Et). Statistically significant differences were found between the students' perceptions of actual-1, actual-2 and preferred environments of their physics laboratory and distinguish individualized classrooms, and teacher interpersonal behaviors with their improving and creating attitudes skills' sustainable development to their physics classes also were found. Predictions of the monitoring and evaluation of master science trainee educational students of their practicum in teaching physics; students' skills developments of their physics achievements' sustainable for the set of actual and preferred environments as a whole and physics related attitudes also were correlated. The R2 values indicate that 58%, 67%, and 84% of the variances in students' attitudes to their actual-1, actual-2 and preferred for the PLEI; 42%, science trainee educational students of their practicum in teaching physics; students' skill developments of their physics achievements' sustainable for the set of actual and preferred environments as a whole and physics related attitudes also were correlated. The R2 values indicate that 58%, 67%, and 84% of the variances in students' attitudes to their actual-1, actual-2 and preferred for the PLEI; 42%, 63%, and 72% for the ICEQ, and 38%, 59%, and 68% for the QTI in physics environment classes were attributable to their perceptions of their actual and preferred physics environments and their developing creative science skills' sustainable toward physics, consequently. Based on all the findings, suggestions for improving the physics laboratory and individualized classes and teacher interpersonal behaviors with students' perceptions are provided of their improving and creating attitude skills' sustainable development by the master science trainee educational students' instructional administrations.

**Keywords :** promotion, instructional model, qualitative method, reflective thinking, trainee teacher student

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