

## C840542 : MAJOR EDUCATIONAL RESEARCH

KEY WORD: LISREL MODEL / CHANGE / SCIENCE CHARACTERISTICS

AUMPORN LINCHAREARN : LISREL MODEL FOR STUDYING THE CHANGES.

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The purpose of this research was to develop and validate the LISREL model to study the change of students' science characteristics and test invariance across time and invariance across groups. The developed model consisted of fourteen observed variables and four latent variables : students' characteristics, home environment, pretest science characteristics and posttest science characteristics. The samples consisted of the students studying in Mathayom Suksa 1 in Bangkok and inside muang district and outside muang district of Kamphaeng phet province.

The results indicated that the change of science characteristics model were consistent with empirical data. Model validation of the base fitted model provide the chi-square goodness of fit test of 46.90, df=52 and GFI = .99. The results of the test of invariance across time and invariance across groups of the change of science characteristics model indicated that the measurement model was invariance across time but not invariance across groups. So the parameters estimated for structural model and measurement model for estimating the change scores must be difference between groups.

One-way analysis of variance was used to analysed for the difference of change scores between groups. The results indicated that the mean of change scores of at least one group was different at the .05 level of significance. Post-hoc analysis showed that the change scores of the students studying in bangkok were higher than the students studying outside muang district.

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