ITTIRIT PONGPIYARAT: THE EFFECTS OF STUDENT, TEACHER AND SCHOOL FACTORS ON MATHEMATICS ACHIEVEMENT : META ANALYSES WITH HIERARCHICAL LINEAR MODELS AND GLASS'S METHOD. THESIS ADVISOR: ASSO. PROF. NONGLAK WIRATCHAI , Ph.D. THESIS COADVISOR: ASSO. PROF. SIRICHAI KANJANAWASEE, Ph. D. 159 pp. ISBN 974-333-231-6

This research was a synthesis of research using hierarchical linear models (HLM) and Glass's method. The purposes were to study the relationships between mathematic achievement and student, teacher and school factors ; to study variations in those correlation coefficients and to account for those variations by research characteristic variables ; and to compare the synthesis result and the information derived from those two techniques. Research report to be synthesized were correlational research that employed mathematic achievement as a dependent variable and provided complete statistics which were necessary for meta – analysis. The researcher collected 47 research reports from the universities in Bangkok that offered Educational Degree Programs. The data base for this research consisted of 265 correlation coefficients which were divided into 162 correlation coefficients of student factors, 74 correlation coefficients of teacher factors and 29 correlation coefficients of school factors.

The research results were as follows:

1. The factors that showed the highest correlation with mathematic achievement was the student factors (.338) ; next was the school factors (.294) and the teacher factors (.157) respectively.

2. Research characteristic variables could account for variations in correlation coefficient only in some levels. In the correlation coefficient level, the student and teacher factor variables explained 37 percents of variation in correlation coefficient. In the report level, none of the research characteristic variable could explain where as in the level of institution producing research, Chulalongkorn University could explain 2 percents of variation.

3. The comparison of the two techniques resulted that the meta – analysis using hierarchical linear models facilitated the synthesis more and yielded more information than Glass's meta – analysis. Those additional information consisted of the estimators of correlation coefficients for each report, the test of fixed effect model and the test of homogeneity of correlation coefficients. The strength of Glass's meta – analysis was the easier way to understand and perform. However, the relationship between the average of correlation coefficients obtained from those two techniques was very high (0.97) and was statistically significant at .001 level.
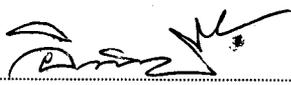
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