MODELING THE STUDENTS' MATHEMATICS ACHIEVEMENT IN MALAYSIA: COMPARISON BETWEEN STRUCTURAL EQUATION MODELING (SEM) AND NORMAL PRACTICE METHODS

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This study is dedicated to my beloved parent

Mdm Wan Hairani @ Wan Maznah binti Wan Hamat

and

Mr Aimran bin Mohd Sharif

for their continuous support through my study.

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Ahmad Nazim bin Aimran

Sept 2013

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The main goal of this research is to assess the efficiency of Structural Equation Modeling (SEM) and Normal Practice methods. This is because SEM is said to have a better estimation and prediction when multiple response items were involved in constructs. The efficiency of both methods was compared by using Absolute, Incremental and Parsimonious fitness indexes computed by AMOS graphic software. From the result of this research, it is found that SEM method achieved all fitness indexes required level while Normal Practice method failed to achieve Absolute and Parsimonious fit. As a conclusion, SEM method is proven to be more efficient in making estimation and prediction than the Normal Practice method.

Keywords:. Structural Equation Modeling, Normal Practice, TIMSS, Mathematics Achievement, Mediation

PEMODELAN PENCAPAIAN PELAJAR MATEMATIK DI MALAYSIA: PERBANDINGAN KAEDAH PEMODELAN PERSAMAAN BERSTRUKTUR (SEM) DAN AMALAN BIASA

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Penyelia   : **Prof. Madya Sabri bin Ahmad, Ph.D**

Pusat Pengajian   : **Informatik dan Matematik Gunaan**

Matlamat utama kajian ini adalah untuk menilai kecekapan kaedahPemodelan Persamaan Struktur (SEM) dan kaedah Amalan Biasa. Ini kerana SEM dikatakan mampu memberikan anggaran dan ramalan yang lebih baik apabila pemboleh ubah melibatkan banyak item respon. Kecekapan kedua-dua kaedah telah dibandingkan dengan menggunakan indeks *absolute, incremental* dan *parsimonious* yang diperoleh dengan menggunakan perisian AMOS grafik. Hasil kajian mendapati bahawa kaedah SEM mencapai semua tahap indeks yang diperlukan manakala kaedah Amalan Biasa gagal mencapai tahap indeks *Absolute* dan *Parsimonious*. Kesimpulannya, kaedah SEM telah terbukti lebih cekap dalam memberikan anggaran dan ramalan berbanding kaedah Amalan Biasa.

Katakunci:. Pemodelan Persamaan Berstruktur , Amalan Biasa TIMSS, Pencapaian Matematik, Pengantaraan