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| Program: | HLM 7 Hierarchical Linear and Nonlinear Modeling |
| Authors: | Stephen Raudenbush, Tony Bryk, & Richard Congdon |
| Publisher: | Scientific Software International, Inc. (c) 2010 |
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| Module: | HLM2.EXE (7.00.21105.10001) |
| Date: | 10 May 2013, Friday |
| Time: | 12: 0:39 |

## Specifications for this HLM2 run

Problem Title: Random Intercept Model  
  
The data source for this run = Acitelli\_Random\_Intercept  
The command file for this run = C:\Users\NSOE-CTC\Desktop\DATIC Madura\Acitelli\_1a.hlm  
Output file name = C:\Users\NSOE-CTC\Desktop\DATIC Madura\hlm2.html  
The maximum number of level-1 units = 296  
The maximum number of level-2 units = 148  
The maximum number of iterations = 100  
  
Method of estimation: restricted maximum likelihood  
  
The outcome variable is SAT\_A

### Summary of the model specified

#### Level-1 Model

*SAT\_Aij* = *β0j* + *β1j*\*(*OPOS\_Aij*) + *β2j*\*(*OPOS\_Pij*) + *rij*

#### Level-2 Model

*β0j* = *γ00* + *u0j*  
    *β1j* = *γ10*   
    *β2j* = *γ20*

#### Mixed Model

*SAT\_Aij* = *γ00*   
    + *γ10*\**OPOS\_Aij*   
    + *γ20*\**OPOS\_Pij*  + *u0j*+ *rij*

## Final Results - Iteration 6

**Iterations stopped due to small change in likelihood function**  
  
σ2 = 0.09244  
  
τ

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| INTRCPT1,*β0* | 0.08175 |

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| Random level-1 coefficient | Reliability estimate |
| INTRCPT1,*β0* | 0.639 |

The value of the log-likelihood function at iteration 6 = -1.474402E+002

#### Final estimation of fixed effects:

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| --- | --- | --- | --- | --- | --- |
| Fixed Effect | Coefficient | Standard error | *t*-ratio | Approx. *d.f.* | *p*-value |
| For INTRCPT1, *β0* | | | | | |
| INTRCPT2, *γ00* | 0.669754 | 0.322430 | 2.077 | 147 | 0.040 |
| For OPOS\_A slope, *β1* | | | | | |
| INTRCPT2, *γ10* | 0.400423 | 0.047314 | 8.463 | 146 | <0.001 |
| For OPOS\_P slope, *β2* | | | | | |
| INTRCPT2, *γ20* | 0.287970 | 0.047314 | 6.086 | 146 | <0.001 |

#### Final estimation of fixed effects (with robust standard errors)

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| Fixed Effect | Coefficient | Standard error | *t*-ratio | Approx. *d.f.* | *p*-value |
| For INTRCPT1, *β0* | | | | | |
| INTRCPT2, *γ00* | 0.669754 | 0.361831 | 1.851 | 147 | 0.066 |
| For OPOS\_A slope, *β1* | | | | | |
| INTRCPT2, *γ10* | 0.400423 | 0.050381 | 7.948 | 146 | <0.001 |
| For OPOS\_P slope, *β2* | | | | | |
| INTRCPT2, *γ20* | 0.287970 | 0.049855 | 5.776 | 146 | <0.001 |

#### Final estimation of variance components

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| Random Effect | Standard  Deviation | Variance  Component | *d.f.* | χ2 | *p*-value |
| INTRCPT1, *u0* | 0.28592 | 0.08175 | 147 | 404.24934 | <0.001 |
| level-1, *r* | 0.30404 | 0.09244 |  |  |  |

#### Statistics for current covariance components model

Deviance = 294.880386  
Number of estimated parameters = 2