July 9, 2013   
LSAY LTA Project Report

Kyusang Park

1. Recoding of all the indicator variables into binary categories across three time points

Math and Science as Subject Matter Items (Cohort 2, Grade7)

AB39A = I enjoy math

AB39H = Math is useful in everyday problems

AB39I = Math helps a person think logically

AB39K = It is important to know math to get a good job

AB39L = I will use math in many ways as an adult

AB39M = I enjoy science

AB39T = Science is useful in everyday problems

AB39U = Science helps a person think logically

AB39W = It is important to know science to get a good job

AB39X = I will use science in many ways as an adult

Math and Science as Subject Matter Items (Cohort 2, Grade10)

GA32A = I enjoy math

GA32H = Math is useful in everyday problems

GA32I = Math helps a person think logically

GA32K = It is important to know math to get a good job

GA32L = I will use math in many ways as an adult

GA33A = I enjoy science

GA33H = Science is useful in everyday problems

GA33I = Science helps a person think logically

GA33K = It is important to know science to get a good job

GA33L = I will use science in many ways as an adult

Math and Science as Subject Matter Items (Cohort 2, Grade12)

KA46A = I enjoy math

KA46H = Math is useful in everyday problems

KA46I = Math helps a person think logically

KA46K = It is important to know math to get a good job

KA46L = I will use math in many ways as an adult

KA47A = I enjoy science

KA47H = Science is useful in everyday problems

KA47I = Science helps a person think logically

KA47K = It is important to know science to get a good job

KA47L = I will use science in many ways as an adult

1 (strongly disagree) 🡪 0

2 (disagree) 🡪 0

3 (not sure) 🡪 0

4 (agree) 🡪 1

5 (strongly agree) 🡪 1

1. Add covariates of Minority, Female, and MathG7, MathG10, and MathG12

Minority

All rest 🡪 1

White and Asian 🡪 0

Female

Female 🡪 1

Male 🡪 0

MathG7 = Summary math scores at Grade7

MathG10 = Summary math scores at Grade10

MathG12 = Summary math scores at Grade12

3. Add distal outcomes of STEM, STEMSup, Engineer, MathG8, ScienceG8, MathG11, and ScienceG11

STEM

STEM 🡪 1

All rest 🡪 0

STEMSup

STEM and STEMSupport 🡪 1

All rest 🡪 0

Engineer

Engineer 🡪 1

All rest 🡪 0

MathG8 = Summary math scores at Grade8

ScienceG8 = Summary science scores at Grade8

MathG11 = Summary math scores at Grade11

ScienceG11 = Summary science scores at Grade11

3. Class enumeration

Given the fit indices and item probability profiles, 4-class solutions seem to be the best for all time points

4. Final LCA model:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| AB39A  GA32A  KA46A | AB39H  GA32H  KA46H | AB39I  GA32I  KA46I | AB39K  GA32K  KA46K | AB39L  GA32L  KA46L | AB39M  GA33A  KA47A | AB39T  GA33H  KA47H | AB39U  GA33I  KA47I | AB39W  GA33K  KA47K | AB39X  GA33L  KA47L |

Minority  
Female

MathG7

MathG10

MathG12

STEM  
STEMSup  
ENGINEER

MathG8  
ScienceG8

MathG11  
ScienceG11

c