|  |
| --- |
| Figure 4: Model Equation |

READJOY = τ READJOY + β₁₁.ENTUSE + β₂₁.HOMESCH + β₃₁.USESCH + β₄₁.IMMI1GEN

+ β₅₁.IMMI2GEN + β₆₁.FEMALE + β₇₁.ESCS + ε RADJOY

READCOMP = τ READCOMP + β₁₂.ENTUSE + β₂₂.HOMESCH + β₃₂.USESCH + β₄₂.IMMI1GEN

+ β₅₂.IMMI2GEN + β₆₂.FEMALE + β₇₂.ESCS + ε READCOMP

READEASE = τ READEASE + β₁₃.ENTUSE + β₂₃.HOMESCH + β₃₃.USESCH + β₄₃.IMMI1GEN

+ β₅₃.IMMI2GEN + β₆₃.FEMALE + β₇₃.ESCS + ε READEASE

READ = τ READ + β₁₄. READJOY + β₂₄.READCOMP + β₃₄.READEASE + β₄₄.ENTUSE +

β₅₄.HOMESCH + β₆₄.USESCH + β₇₄.FEMALE + β₈₄.ESCS + ε READ

τ : intercept

β: Regression Coefficient

ε: residuals

Assuming the following for residual distribution:

ε READJOY 0 σ2 READJOY 0 0 0

ε READCOMP ~ MVN 0 , 0 σ2 READCOMP 0 0 , and ε ~ *N (0,* σ2 READ)

ε READEASE 0 0 0 σ2 READEASE 0

ε READ 0 0 0 0 σ2 READ

|  |
| --- |
| MVN: multivariate normal distribution  *N*: Normal distribution  σ2: Standard deviation |

Figure 5: Model Matrix

READJOY τ READJOY 0 0 0 β₁₄ READJOY

READCOMP τ READCOMP 0 0 0 β₂₄ READCOMP

READEASE **=** τ READEASE **+** 0 0 0 β₃₄ **+** READEASE +

READ τ READ 0 0 0 0 READ

β₁₁ β₁₂β₁₃ β₄₄ ENTUSE

β₂₁ β₂₂ β₂₃ β₅₄ HOMESCH

β₃₁ β₃₂ β₃₃ β₆₄ USESCH ε RADJOY

β₄₁ β₄₂ β₄₃ 0 + IMMI1GEN + ε READCOMP

β₅₁ β₅₂ β₅₃ 0 IMMI2GEN ε READEASE

β₆₁ β₆₂ β₆₃ β₇₄ FEMALE ε READ

β₇₁ β₇₂ β₇₃ β₈₄ ESCS