



SPSS Tip 20.1

Error messages about 'failure to converge'

Many statistical procedures use an *iterative process*, which means that your computer attempts to estimate the parameters of the model by finding successive approximations of those parameters. Essentially, it starts by estimating the parameters with a 'best guess'. It then attempts to approximate them more accurately (known as an *iteration*). It then tries again, and then again, and so on through many iterations. It stops either when the approximations of parameters converge (i.e., at each new attempt the 'approximations' of parameters are the same or very similar to the previous attempt), or it reaches the maximum number of attempts (iterations).

Sometimes you will get an error message in the output that says something like 'Maximum number of iterations were exceeded, and the log-likelihood value and/or the parameter estimates cannot converge'. What this means is that SPSS Statistics has attempted to estimate the parameters the maximum number of times (as specified in the options) but they are not converging (i.e., at each iteration estimates are quite different). If this happens you should ignore any output, and it might mean that your data are beyond help. You can try increasing the number of iterations that are attempted, or make the criteria to assess 'convergence' less strict.