How to get the ICC in DSEM

You can use a multilevel model (MSEM) to get the ICCs or you can use a DSEM model. We would expect the same answer if the size of the clusters is larger, for example 50 time points. However, it depends on how large the autocorrelation is. If the autocorrelation is very large then you would need a sample size of 100 to have the two methods agree. Depending on how large the clusters are and how large the autocorelation is, the MSEM model may produce a biased result. This is because in MSEM models the autocorrelation (which is not accounted for) can be confused by the estimation method for a between level effect. It is preferable in general to use a DSEM model.

You can run the variables one at a time with DSEM to avoid any structural model misspecifications effect on the computation of ICC. In DSEM you have to use the option output:residual to get the estimated within and between variances and from there you can compute the ICC as VB/(VW+VB) . You may find appendix D useful http://www.statmodel.com/download/DSEM.pdf which shows how the within and between variances are computed in DSEM.

To get the ICC with DSEM for a single variable Y, we recommend this model

%within%
Y on Y&1;
%between%
Y;
output:residual;