Sample size vid Rasch-analys

Under workshopen diskuterades problematik kring små (och stora) sample vid psykometrisk analys i allmänhet och Rasch-analys i synnerhet. I anslutning till detta ställdes samma fråga via listserven Matilda Bay Club, med följande svar från Prof. David Andrich:

The guideline of 10-20 people per item category is useful but like any other guidelines, there is a lot else that must be considered. For example I suggest that if you want a good feel for the locations of the parameters and fit, then it is helpful to have a sample size at least 10 times the number of parameters estimated (as in regression).

Among other factors relevant is the distribution of persons relative to the items. It is good to have the persons targeted to items. However, sometimes you may have items that have a reasonable location across the continuum, and then if the persons are well aligned on the average, the items at extremes may not have many people in their extreme categories, and even none. That should not be an impediment to the analysis as such. Any interpretation, however, has to be justified, and if the sample is small, then it should be noted. However, what if you had 20 people in a category in a sample of 10000 - is that relatively small. Would you have had 0 perhaps in a sample of 1000? It is important to understand why are the frequencies small, if others are large, not just that they are small.

Then the relevance of the sample size also depends on the stage of the research. In the early stages of the development of a questionnaire, you may have a relatively small sample. Such a sample will tell you about any macro problems, that then have to be cross referenced with the substantive explanation. If they point to problem that you can understand in structural or substantive terms, then it means the questionnaire needs to be improved. When it is improved, maybe you need a bigger sample to get more information.

If you are using an instrument with which you are confident and you need to carry out a survey of some population, then all the usual survey sampling issues about a representative and large enough sample with relevant demographics represented, etc, have to be invoked. Again, it is not just the sample size of course.

I think the statement that "I am aware that the required sample size for a Rasch analysis is 10-20 people per item category" suggests a shift from a guideline to something mandatory, which I think is too strong. So my answer about the sample and category size is, as usual, they depend on a lot of other things as well, and you may or may not be able to get information from a smaller sample size. Therefore you need to try it, and see what sense you can make of it and whether you could convince anyone else.

Hope this helps.

David