

that taps students' conceptual understanding of a science concept may elicit responses that reflect four different types of conceptual understanding. One of the responses may be considered very naive and scored as level zero, a second type of response may be regarded as indicative of a sophisticated understanding and be scored as level two, and the two remaining categories may both indicate partially correct, but qualitatively different, misconceptions that can each be reasonably scored as level one. ACER ConQuest can analyse this as a four-category item with three different score levels. It does this through the application of Wilson's ordered partition model (Wilson, 1992).

1.2.5 Linear Logistic Test Model

Fischer (1983) developed a form of Rasch's simple logistic model that allows the item difficulty parameters of items to be specified as linear combinations of more fundamental elements, such as the difficulties of cognitive subtasks that might be required by an item. ACER ConQuest is able to fit the linear logistic model to both dichotomous and polytomous response items.

1.2.6 Multifaceted Models

Linacre's multifaceted model (Linacre, 1994) is an extension of the linear logistic model to partial credit items. Standard item response models have assumed that the response data that are modelled result from the interaction between an object of measurement (a student, say) and an agent of measurement (an item, say). Linacre (1994) has labelled this two-faceted measurement, one facet being the object of measurement and the other the agent of measurement. In a range of circumstances, however, additional players, or facets, are involved in the production of the response. For example, in performance assessment, a judge or rater observes a student's performance on tasks and then allocates it to a response category. Here we have three-faceted measurement, where the response is determined by the characteristics of the student, the task and the rater. The general class of models that admit additional facets are now called multifaceted item response models.

1.2.7 Generalised Unidimensional Models

ACER ConQuest's flexibility, which enables it to fit all of the unidimensional models described above, derives from the fact that the underlying ACER ConQuest model is a