

## **ANNEX E**

### **Methodology for Assessment of Learner Outcomes**

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The primary tool for this was developed from models used in the Adult Literacy and Numeracy Scales project (Griffin, Hepenstall, Pollock, and Forwood, 1992) and in the Longitudinal Survey of Immigrants (Jones, 1995; see Jones, 1990, for an earlier discussion of this method). In the assessment, respondents were asked to report how well they could perform several literacy and numeracy tasks both before entering the program and after<sup>1</sup>. These tasks were ones that differed in difficulty as established by the International Adult Literacy Survey (Statistics Canada, 1996). They are listed in below.

### **Tasks used in assessment of literacy and numeracy skills**

#### **Reading Tasks**

How easily could you read signs and notices in a grocery store?
How easily could you fill out an entry form for a contest?
How easily could you read instructions on medicine labels, if you had not taken the medicine before?
How easily could you find information in the yellow pages of the telephone book?
How easily could you read a letter from a relative or friend?
How easily could you read an article in the newspaper?

#### **Numeracy Tasks**

If you had to buy a tablecloth and wanted to measure the length and width needed
If you know how much one loaf of bread costs and needed to figure out how much two loaves will cost
If you bought three different items at a store, and wanted to figure out the total cost of the bill
If you know the price of a pair of shoes at a store and needed to figure out how much the 15% tax will be

Respondents were provided with five levels of response:

- Easily
- With some help
- With a lot of help
- Not at all
- Don't know

Levels of ability were estimated by the ease with which a respondent could carry out this range of tasks. Scores were estimated for each respondent using the Rasch model analysis in ConQuest, a software program developed by the Australia Council for Educational Research (Wu, Adams, and Wilson, 1998). A Rasch model provides estimates for the ability of individuals and the

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<sup>1</sup>Respondents still in programs and there less than three months were only asked the before question.

difficulty of the tasks they have done so that the former can be interpreted in light of the latter. Figures 1 and 2 that follow show the ability distribution of the respondents' pre-course evaluations of literacy and numeracy (left panel) compared to the distribution of the difficulty of each of the tasks (middle panel) at different "ease" levels (right panel). Cut points to identify levels were established based on a comparison of the tasks used in this assessment to items in the International Adult Literacy Survey. That is, tasks in this assessment that shared characteristics with items at Level 2 in IALS were considered to be level 2 here. With one exception, this procedure yielded consistent results in that tasks associated with IALS Level 1 were less difficult than the ones associated with IALS Level 2<sup>2</sup>. The exception was the letter from friends task, which was easier than expected, and which did not have high fit in any case. This task was dropped from the final estimation of ability.

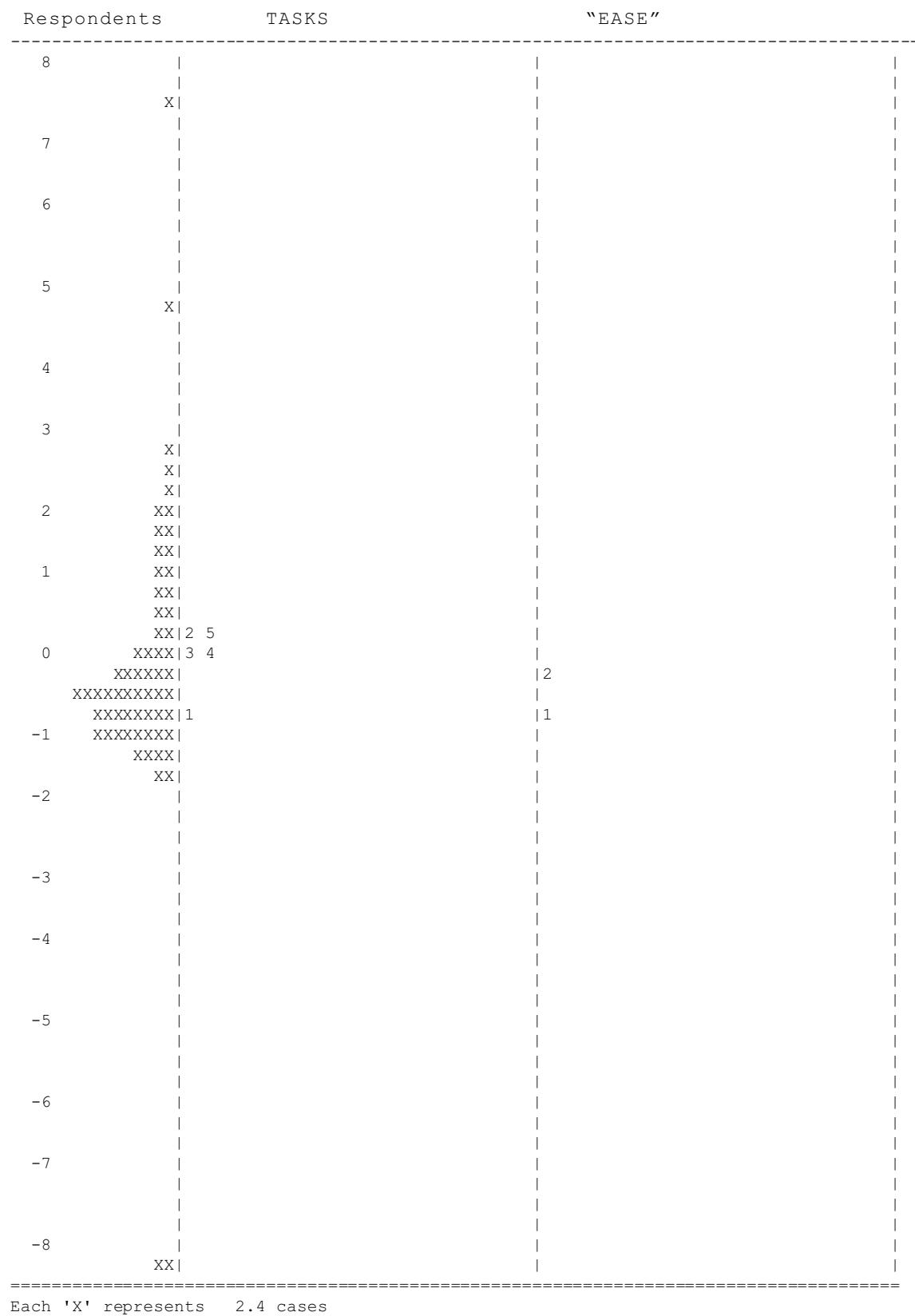
Once the cut points were established levels respondents were assigned a level appropriate to their score:

- If score higher than cut point between Level 1 and 2, assign to Level 2;
- If score lower than cut point between Level 1 and Level 2, but higher than easiest task score, assign to Level 1
- If score lower than easiest task difficulty, assign to Level 0.

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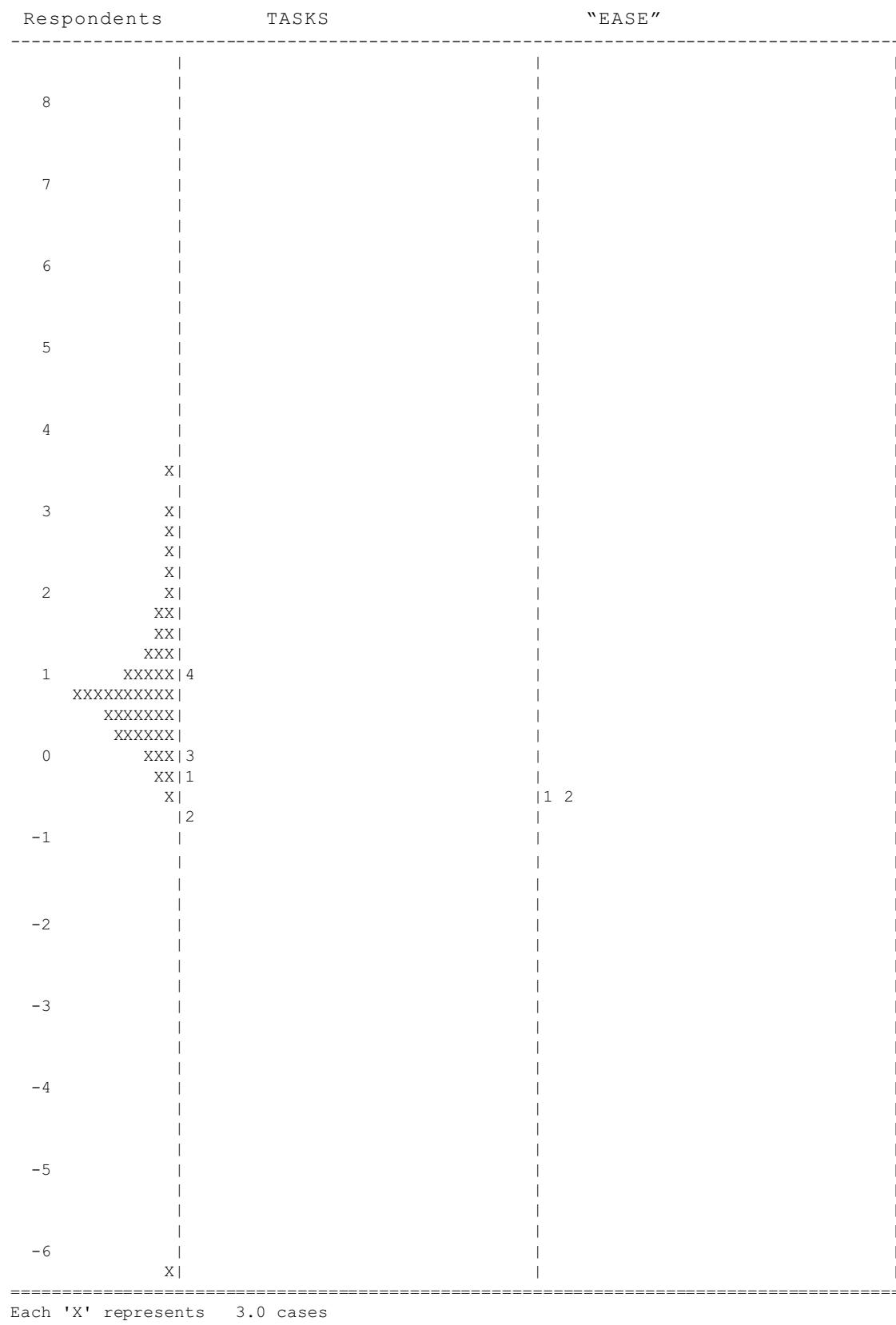
<sup>2</sup>Given the nature of the expected population in this survey, no attempt was made to create tasks equivalent to IALS Level 3. As it turns out, there were probably individuals with Level 3 skills in the survey.

**Figure 1. Distribution of Rasch estimates of respondent ability and task difficulty, literacy “pre-test”**



Each 'X' represents 2.4 cases

**Figure 2. Distribution of Rasch estimates of respondent ability and task difficulty, numeracy “pre-test”**



The four estimates (pre- and post-, literacy and numeracy) all had good Rasch reliability, below:

### Separation reliabilities for the four assessments

		Separation Reliability
Literacy	Pre-	.959
	Post-	.974
Numeracy	Pre-	.913
	Post-	.966

### REFERENCES USED IN METHODOLOGY

Griffin, P. Hepenstall, N., Pollock, J. & Forwood, A. (1992). *ALAN scales training manual*. Melbourne, Assessment Research Centre, Phillip Institute of Technology.

Jones, S. (1995). Task design for Longitudinal Survey of Immigrants (working paper). Ottawa: Statistics Canada.

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Statistics Canada. (1996). *Reading the future: A portrait of literacy in Canada*. (89-551-XPE). Ottawa, Statistics Canada.

Wu, M., Adams, R. J., & Wilson, M. R. (1998). *ACER ConQuest: Generalised item response modelling software*. Melbourne, Australian Council for Education Research.