

Factors related to competency level of reading numbers of Grade One students: A longitudinal study

G Kodituwakku^{1*}, J S N P Dharmawardena² and D A S D Ratnayake¹

¹ *Department of Research and Development, National Institute of Education, Maharagama*

² *Institute of Statistical Studies, Naranwatta, Veyangoda*

As a part of a longitudinal research initiated in 2002, competency of identifying numbers (not in order: 1,3,6,2,5,7,4,9,8) was measured using an activity given to 1021 children from 43 Grade 1 classrooms in forty-one schools selected to represent the diverse social, cultural, economic, demographic, geographical and educational backgrounds of the country. Thirteen variables were considered to study their relative association with the competency of identifying 1 to 9 during the three school terms. The associations between competent level (Response variable) (Level 1: Competent - students who were able to read more than 80% of numbers); Level 2: Not competent - students who were not able to read more than 80% of numbers) and rest of the variables were measured using the Pearson chi-square test. Significantly associated variables in the three terms clustered using multivariate technique and four meaningful clusters could be identified. Four variables (School Type: ST, Medium:

M, Socio-Economic Zone: SEZ, and Way of Coming to School: WCS) were selected to represent each cluster. The way of contribution of selected variables to the competent level was studied fitting a Logistic Regression Model. Forward selection procedure was applied to obtain the model. The model is:

$$\text{Logit}(p_{ijkl}) = \text{Constant} + (\text{School type})_i + (\text{Medium})_j + (\text{Socio-Economic Zone})_k + (\text{Way of coming to school})_l ;$$

where $\text{Logit}(p_{ijkl}) = \text{Log}_e((p_{ijkl} / (1 - p_{ijkl}))$

Here, p_{ijkl} is the probability of being competent of reading numbers for a grade 1 student who studies i^{th} type of school in j^{th} medium, who belongs to k^{th} socio-economic zone and who comes to school by l^{th} way.

Accordingly for a grade 1 student who belongs to 3rd SEZ, who studies in a Type 1C school in Tamil M and comes to school by a vehicle has the maximum possibility of being competent in reading numbers in the first term. Minimum possibility is recorded from a student belonging to SEZ – 2, studying in a Type 2 school in Sinhala medium and who comes to school on foot. In the third term, for a grade 1 student who belongs to 1st SEZ, who studies in a Type 3 school in Sinhala medium and comes to school by a vehicle has the maximum possibility of being competent in reading numbers. The relevant minimum possibility is recorded from a student belonging to SEZ– 3, who studies in a Type 2 school in Tamil medium and comes to school on foot. It can be clearly identified that the medium of instruction has been a major influencing factor of becoming competency on reading numbers of grade 1 student from school term 1 to term 3.

Acknowledgement: Financial assistance by UNICEF

² *Present Address: Sample Survey Division, Department of Census and Statistics, Colombo 07.*