



LIBIRT: an open source program for Item Response Theory

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Item Response Theory (IRT) modeling is a powerful statistical technique for designing and analyzing questionnaires, tests and instruments measuring abilities, attitudes, or any other hypothesized traits. IRT methodology is quite popular in many fields: psychometrics, health and clinical research, quality-of-life, education, etc. The main idea underlying IRT concepts is that the probability of a given response to an item/question depends on the item parameters together with the respondent characteristics/traits. The estimation of this probability function and other related problems have received a lot of attention in the literature.

The purpose of this talk is to present LIBIRT, an open source program that deals with parametric and nonparametric estimation of some commonly used IRT dichotomous and polytomous models. It includes a library of C functions which might be used in various applications: IRT models, differential item functioning, cutoff scores, equating, etc. Two applications using this library, an R package(RIRT) and an Excel add-in (EIRT) are freely available at (<http://libirt.sourceforge.net/>)

Keywords: Item Response Theory; Questionnaire Design; Cutoff Scores, IRT Equating Methods.