CLASSIFICATION OF SRI LANKAN ADULTS INTO AGE GROUPS WITH OPTIMALLY DIFFERENT LIKELIHOODS OF MOBILE PHONE ADOPTION

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Abstract

The mobile phone has become an indispensable device among all sort of people in every nook and corner of the world. However, several studies have established that not everyone is equally likely to adopt mobile phone use. The likelihood is observed to vary significantly according to various factors such as age, gender, urbanity, education background, socio-economic class, social pressure, necessity and tech-fluency. Hence, to understand who is being reached and who is not, it is crucial to learn about the mobile owners not only for the private institutions which aim to reach a larger audience through their mobile adverts at a comparably low cost and time but also for the government institutions that are trying convey important instructions to the public. Previous studies have found age to have a significantly negative relationship with the likelihood of mobile adoption. However, by exploring the AfterAccess survey dataset, which contains data collected from 2,017 Sri Lankan adults aged between 15-65 among many other nationalities, with the use of a chi-squared test (p-value < 0.001) and the estimated mobile adoption proportions for equal-width bins of age, we found indications of a significant non-linear association between age and mobile adoption likelihood. Therefore, intending to classify the population under consideration into three different age groups with optimally different likelihoods of mobile adoption, we applied Minimum Description Length Principle (MDLP) discretization algorithm to identify the limits of the three age classes. The results indicated that the age group of 32-48 has the highest likelihood (85%) of mobile adoption in Sri Lanka while it is slightly lower for the young age group of 15-31 (81%) and far less for the old age group of 49-65 (69%).

Keywords: Mobile phone adoption, Age groups, Minimum Description Length Principle (MDLP), Binning, Discretization, AfterAccess.