

The purpose of this research was to investigate the differential predictive validity of the Differential Aptitude Test (DAT), the Kenya Certificate of primary Education (KCPE) and the Kenya Certificate of Education (KCE) examination in the success of students in secondary level technical courses in Kenya. The predictive validities of the three batteries were compared in order to determine the subtests, which would predict technical performance best.

The contention of the researcher was that both the K.C.P.E. and the K.C.E. were inadequate measures for purposes of selecting candidates for technical courses since they were academically biased. Academically biased mental tests are heavily loaded with verbal and numerical reasoning. They serve well in predicting for academic courses but not for technical courses which require spatial and mechanical reasoning abilities. The DAT contains both spatial and mechanical reasoning subtests and was therefore expected to be a better predictive tool for technical courses.

The subjects were students enrolled in the technical institute of Kabete and Thika. They were categorized into two groups, namely; craftsmen (N=149) and artisans (N=61). The data included K.C.P.E. grades for the artisans, K.C.E. grades for the craftsmen, DAT scores and technical grades for both groups. The data analysis included frequency tabulations, correlational analysis, multiple regression and factor analysis.

Correlational analysis revealed that certain public examination papers and DAT measures had high predictive validities for technical courses. For the craftsmen the most critical KCE papers were Mathematics, Geography, Biology, Physical Science and Technical courses. For the artisans, the most critical KCPE papers were Mathematics, Science and Agriculture, Technical Subjects, and the combined paper of Geography, History, Civics and Religious Education (GHCRE). The DAT tests with leading predictive validities were Numerical Ability, Abstract Reasoning, Mechanical Reasoning and Space Relations.

Multiple Regression analysis was carried out for the purpose of determining the combination of predictor variables, which would maximize prediction of performance in technical courses. Various combinations of public examination papers and DAT tests emerged as potential multiple predictors of technical performance. The computed F ratios revealed that the increments to predictable variance (R's) in technical performance attributed to inclusions of second and third order predictor variables were statistically significant. Latter additions tended to make minute contributions to predictable variance which reflected redundant measurement by the latter predictor variables. However, in many cases the accounted for variance was than 50per cent.

Factor analysis was carried out with a view to identifying the constructs measures by the technical examination papers and as revealed in the intercorrelation matrices. It was observed that technical papers tended to load on a unique factor, which would have low correlation coefficients with the DAT and the public examination papers.

On the basis of this study, it was recommended that the DAT should be incorporated into the selection procedures for technical institutes.