Chapter 22
Developing Dropout Predictive System for Secondary Schools Using Classification Algorithm: A Case of Tabora Region in Tanzania

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ABSTRACT

Recently, there has been an increase of enrollment rate in government schools, as a result of fee free and expansion of compulsory basic education to form four in Tanzania. However, the completion rate of students is highly affected by extreme dropout rate. Researchers in previous studies have explored the causes of school dropout, and they came with general recommendation based on treatment measures. This study, however, deals with predictive measures in which classification algorithm is used in developing dropout predictive system. The targeted population of this study was obtained by employing purposive and non-probability sampling techniques. The study was guided by system theory and conducted in four councils of Tabora region in Tanzania because of high rate school dropout reported in the previous studies. After the analysis, it has been observed that social factors and academic factors have strong impact on the targeted variable dropout time. The study recommends the use of dropout predictive system in secondary schools so as to predict future outcomes of students earlier.

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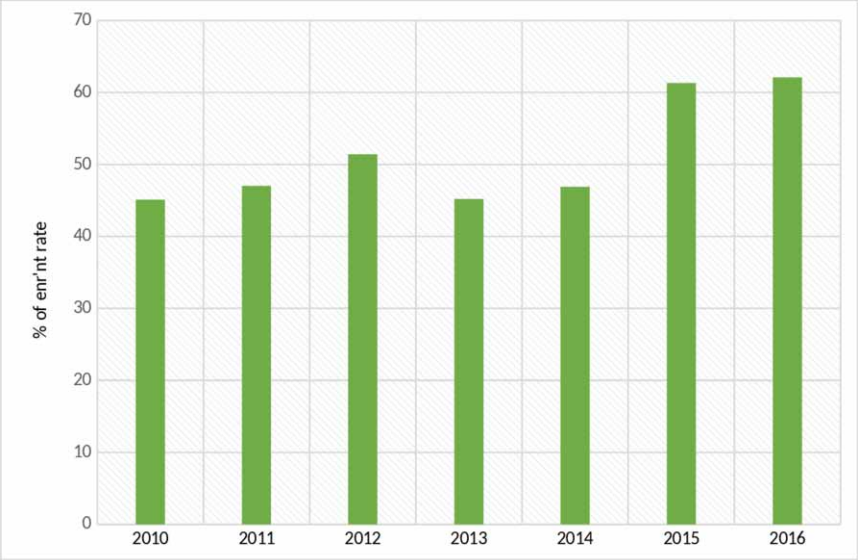
INTRODUCTION

Education is becoming a national priority for successes of the Tanzania since independence (Moevt, 2010; Todd & Attfield, 2017). Many changes in curriculum and education policies have been made in past decade to obtain competitive learners. For example, Education and Training Policy of Tanzania in 2014 expanded compulsory basic education from pre-primary to form four. In addition, the introduction of fee free secondary education in 2016 and increasing government budget in education on fiscal year 2017/2018 in which about TSh 4.71 trillion allocated for education expenditure in the country. Such government initiatives lead to increase enrollment rates in government schools as shown in Fig. 1.1 (UNICEF, 2018). However, the completion rate of students is highly affected by extreme dropout rate in secondary schools.

Figure 1. Enrolment rate in secondary schools in Tanzania (Source: URT (2018)



There is an evidence of increasing school dropout rate among the students in secondary schools of Tanzania as shown in Fig. 2. Dropout rate is generally defined as a number of pupils who leave school before the entire time of graduation (UNICEF, 2017). It is considered as dropout rate if it occurs during or between regular school terms. The concept of school dropout does not include students who complete one cycle and do not enroll in the successive level of the educational cycle or who transferred to another institution (Markovic, et al, 2017).

UNESCO report (2017) based on data from 128 countries in the world over the period of 2010- 2015 shows that less than 25% and 50% young children in 40 and in 60 countries respectively had completed secondary school and only 14 countries with a completion rate of at least 90%. In 2011, eight nations including Algeria, Congo and Belize had 15% primary school education dropout rate compared to 57% secondary dropout rate. Furthermore, nations such as India and South Africa had the secondary dropout rate of 17% in 2013. The problem of school dropouts is experienced in both developed and developing

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