THE DYNAMICS OF LEARNER RETENTION AND DROPOUT IN A PEER ASSISTED OPEN DISTANCE LEARNING ENVIRONMENT: A MATHEMATICAL MODEL

W.P.T.M. Wickramaarachchi*

Department of Mathematics, The Open University of Sri Lanka

Student dropouts is one of the most significant challenges faced by open distance learning (ODL) institutions in higher education. The dropout rate is high in these higher education institutes in distance mode compared to conventional counterparts. It is obvious that the sustainability of these institutions depends on two factors: 1) the number of graduates produced and 2) how effectively the dropout rate is minimised.

Over the decades, many researchers have worked on modeling and analysing retention and dropout in distance learning in higher education. However, most of these predictive models rely mostly on data thus these models are extremely localised and the overall dynamic of the process is not captured.

This study aims to develop a mathematical model using a system of non-linear differential equations which investigate the retention and dropout dynamic of students in an ODL environment with minimum resources for the learner. The entire student intake is divided into two categories: 1) potentially retained and 2) potential dropouts. This study analyse show peer learning influences this dynamic. However, the change in the dynamic due to learner support from the teachers and institution itself is not addressed here.

The system is solved numerically using a vector of values for effective peer learning parameters and the simulated results suggest the proportion of potential dropouts declines as the efficacy of peer interaction increases. The outcome further reveals that most dropouts take place during the first 5-7 months after their academic program commences.

The effect of learner and institutional support is not considered in this model. Thus, it is expected that an improved model with this additional support for students may reveal more information about the process.

Keywords**:** Retention, Drop out, Dynamic, Mathematical Model, ODL

**Corresponding author:wptharindu86uoc@gmail.com*