

LOYOLA Y BLANCO, José, MODELING A VIRTUAL LEARNING ENVIRONMENT AS STATES OF A TURING MACHINE

Abstract: The Modelling of a Virtual Learning Environment can be accomplished through the modelling of states of a Turing Machine, where learning takes place through the transition of states in which knowledge products are built.

In one state, a Turing Machine reads and as a result of this action may or may not write, and may or may not make a state transition.

In the learning process modelled by states of a Turing Machine, the student reads, processes the information, builds a product of knowledge through actions and finally changes his state or remains in the same one. The knowledge products, the operations performed in the actions, and the type of contents read are determined by the abilities of the Structure of Intellect Model (SOI) ensuring in this manner that learning takes place. The modelling of states is the key to displaying and summarizing the curriculum designed by an UML object-oriented modelling, where a Use Case represents a unit of cognitive resources that is developed by the student.

Each use case is developed through an UML state diagram, and then is validated by a Turing Machine modelling state.

It is expected that, in a virtual learning environment, a student should be able to open his own threads of learning with different contents, conduct state transitions determined by his own learning process and produce his knowledge products, which become a case of non-deterministic automata, showing the benefits of adopting the modelling of states of a Turing Machine as a learning model..

Keywords: Turing Machine, Structure of Intellect Model, Knowledge States and Modelling.

ACM/AMS Classification: 97U50