

Semiquantitative Computational Modelling Environment
in the Study of Science Topics:
An Exploratory Study with Universities Students

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Abstract

This exploratory study aims at investigating the use of the Semiquantitative Computational Modelling Environment based on Iconic Metaphor *WLinkIt*, articulating problems of the daily life, specific topics in Sciences and modelling and simulation activities in an exploratory and expressive way, with university students from Physical Sciences and Engineering area. To carry on the study a 4 hour course was designed with two 2 hour classes. The students worked in peers and attended the classes each couple at time. The material used in the first class was consisted of an introduction to the study of System Thinking Reasoning and an introduction to the Semiquantitative Computational Modelling Environment *WLinkIt* where the students developed exploratory activities; in the second class the students were requested to develop a model about the spring-mass system and another about the predator-prey system with the Environment *WLinkIt*. The activities of development of the models were video filmed and the data consisted of the written material of each student of the couples during the development of the models, the sequence of models built from the initial to the final model and the students' arguments. The data are of qualitative nature and for its analysis Systemic Networks technique was used where the aspects related to Computational Modelling Process were considered. The results suggest that the students were able to develop a model on each proposed topic, presenting a series of abilities and difficulties for the construction of the models. It was also

observed that for most students it was easier to build a model about the predator-prey system than about the spring-mass system.