EXPLORING THE CONTEXT AND PRACTICES OF EXPERT SIMULATION MODELLERS

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Abstract
Simulation modelling lacks a rich body of literature on practices of modellers in the real world. We study the context and some generic practices of expert simulation modellers to discover how the context of modellers may affect the practice of modelling and simulation. The results highlight that simulation modellers develop their models under a variety of contexts and their practices may be affected by their context. The problem area, the scope and the breadth of a problem, simulation software and the size and complexity of the model are some of the contextual factors which may affect a modeller’s practices such as model development, documentation, maintenance and evaluation. For example, model maintenance is required only for large scale models developed for long term use. Similarly, varying level of documentation may be required depending on the client requirements and project needs. Our study is a valuable addition to the research investigating simulation practice in the real world.

(Key Words: Simulation Practice, Simulation Context, Contextual Factors, Modelling Process)

1. INTRODUCTION

Modelling and simulation, a widely used tool, is considered to be the technical heart of the operational research and management science [1]. However, simulation modelling research generally focuses more on the application of simulation and less on the practice and methodology of modellers in the real world. Since modellers approach modelling differently under varying contexts the outcome of simulation may depend very much on the personal style and practices of a simulation modeller [2]. Robinson [3] suggests that the way a modeller develops his model depends on the characteristics of a model (e.g. size, complexity, objectives, scope, model life, simulation technique, simulation software, team size, etc.) and a modeller’s skills (e.g. experience, education, style, team skills and size). Thus, the modelling practices (modelling process, documentation, maintenance, client contact, etc.) may also vary with the characteristics of models and the modeller’s skills. Other researchers such as [4-7] suggest that practices of a simulation modeller can potentially affect the quality and success of simulation studies. Simulation practice can only be improved if we understand a modeller’s practices in the real world. Therefore, it is important to conduct in-depth studies in order to enhance our understanding of simulation modelling in varying contexts; which in turn may help in improving simulation practice. This paper explores the context and practice of expert simulation modellers and relates how simulation practice may be affected by the context. This research provides a valuable contribution towards enhancing our understanding of simulation practice in the real world.

The paper has been organised in 7 sections. Section 2 provides an overview of the background literature, section 3 outlines the research methodology, sections 4 and 5 present the results of the study, section 6 provides a discussion on the results and Section 7 concludes the paper.


