Using Simulation for Enhanced Accounting Learning: A Case Study

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ABSTRACT

The increasing focus of government institutions, such as the Tax Administration or Social Security, e-government has introduced a new paradigm that is the obligation of fulfilling obligations to these institutions through online channels. In the case of tax compliance by businesses, there is another requirement, only authorized persons, such as chartered certified accountants, can interact with the system of e-government. The latter requirement precludes the students of accounting and business management, some of them future chartered certified accountants, to get to know the system. This inability lead to the idea of creating applications (simulators) that mimic the official e-government applications for use in educational environment. This paper presents the developed VAT form submission process simulator and a case study of its application in Coimbra Institute of Accounting and Administration (ISCAC) to assess its effectiveness in practice. The results of experimentation show that simulators of official e-government applications, such as VAT Simulator, are extremely helpful in the process of learning e-government official tools, without taking risks.

Keywords: Accounting Education, Computer Simulation, E-Government, E-Government Official Tools Simulation, Simulation in Education

INTRODUCTION

In the last decade, governments around the world invested huge amounts of money in e-government tools, in order to rationalize resources and improve the quality of services offered to citizens, companies and associations (Deloitte, 2011). Car registration, change addresses, virtual helpdesk and taxes payment are some examples of services provided by e-government tools used in the Europe Union (Eurostat, 2010). Some of these tools completely change the traditional procedures, especially with regard to the tax system. Formerly tax obligations were hand-written papers made by chartered certified accounts and delivered in physical facilities. Nowadays, in Portugal, chartered certified accounts submit these forms through the Portuguese Tax Administration Portal: http://www.portaldasfinancas.gov.pt. Some of these electronic forms submissions are legally mandatory like, for instance, the Value Added
Tax (VAT) form, as stated by the article 41 of Portuguese VAT Code (CIVA) (CIVA, 2010). In the VAT form is described the total of VAT amounts withheld by the company due to their economic activity. Periodically, companies must deliver this VAT amounts to the Government (CIVA, 2010). By law, in order to minimize the error rates, only chartered certified accounts can submit this VAT forms (LGT, 2011). Portuguese Tax Administration Portal provides an official VAT form application to the chartered certified accounts and only they can use this application. This reality represents a disadvantage for accounting students, since they only have the opportunity to contact with the official VAT form application when they begin their professional lives. In school they learn how VAT works and learn how calculate VAT values, but they do not practice this knowledge by filling the VAT form in the official application. In order to provide contact with VAT form official application emerged the idea of creating a VAT Simulator.

The VAT Simulator main goal is to imitate the official VAT form application in order to provide accounting students with the experience of submitting VAT official forms. VAT Simulator imitates the behavior and the interface of the official VAT form application. By doing so, students can apply and practice their theoretical knowledge.

VAT Simulator was initially developed to help undergraduate accounting and management students of Coimbra Institute of Accounting and Administration (CIAA) in their last year of the courses, to validate and evaluate the students’ knowledge acquired during the course. Management students were also included because they have the opportunity to be chartered certified accounts (if they passed in the exams of the Chamber of Chartered Accountants).

This paper, after providing an introduction to simulation main concepts, we present the different stages of “VAT Simulator” construction, based on Robinson methodology (Robinson, 2003), which identifies four main stages: real system (problem), conceptual model, computer model and solutions/understanding. Stage one, the real system (or problem), describes the system to simulate and the problem to solve. Stage two, the conceptual model stage that describes the system behavior through a model. Stage three, the computer model stage, is the conversion of conceptual model into computer code that enables to run it in a computer system. The fourth stage, the solutions/understanding stage, is to achieve a concrete result of simulation runs or to get a better understanding of the system derived from experimentation process. Finally, some final remarks regarding the construction and experimentation of the “VAT” simulator.

**SIMULATION AND ITS IMPORTANCE IN ACCOUNTING EDUCATION**

There is still not a universal definition of simulation. Nevertheless, most of the existing definitions follow the same general concept that simulation is an imitation of a system (Banks, Carson, & Nelson, 1996; Ingalls, 2008; Robinson, 2003; Sadoun, 2000; Silva, Trigo, Varajão, & Pinto, 2010).

Daily we benefit from the result of many simulations, like, for instance, weather forecast. A good way to understand simulation concepts is becoming familiar with games (Aldrich, 2005). In games, scenarios are created from real or imaginary systems, with many entities (people, cars, monsters, etc.), where the players play the same game several times but always with different results (the player may lose or win, win with a better or a lower score, etc.) (Silva et al., 2010). When thinking on larger scale issues, like building a production line for a new car or building sky scrapers, the magnitude of the problem increases, but the simulation’s concepts still remain.

For some authors simulation is both an art and a science (Banks et al., 1996; Sadoun, 2000). An art because, like other arts, only can be improved through time and experience, a science because there are rules and concepts that must be followed (Silva et al., 2010). System, entity and resource are some of these concepts.
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