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Technology enhanced learning in accounting: Simulator of Personal Income Tax retained by companies

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Abstract

This paper describes the Simulator of Personal Income Tax retained by Portuguese companies. According to the Portuguese law, monthly and annually companies need to send the information to the Portuguese Tax Administration about the amounts of employees' Personal Income Tax withheld. This task is made through an e-Government tool accessed by company's staff only, which makes it impossible to be used by students. This constitutes an obstacle to the accounting learning, because students cannot experiment the "real" process. With this simulator students can "learn by doing", filling and submitting the Personal Income Tax form filled by companies like the company's staff.

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1. Introduction

In the last decade governments invested in e-Government tools to improve services' quality offered to citizens, companies and associations. Car registration, automatic email notifications and taxes payment are some examples of these services provided by governments of the Europe Union [1]. The Portuguese Government also developed this type of tools.

Formerly enterprises paid their taxes based on hand-written papers (forms), usually filled by the certified accountants and delivered in the physical tax facilities. Currently these forms are submitted through Internet directly into the Portuguese Tax Administration Portal (http://www.portaldasfinancas.gov.pt). In Portugal some of these electronic forms are mandatory by law like, for instance, the Personal Income Tax (PIT) form sent by companies, as stated by the article 120 of Corporate Income Tax (CIT) Code [2].

During the companies' economic life-cycle they pay to many different people like, for instance, employees. By the Portuguese law, at the moment of the payment, companies (or institutions) must withhold the PIT and send it to the PTA. The percentage of PIT is annually defined by the Government. Then monthly companies inform the amount of tax withheld and send these values to the PTA. At the end of the year, the company's certified accountant sends through PTA's portal the detail information about every entity (person, company or institution) the total amounts withheld on each PIT category. Currently this activity is performed in the PTA's portal by companies' authorized personnel. This reality represents an obstacle for accounting and management students, since they only have the opportunity to contact with the official e-government application when they begin their professional lives. In school they learn how to calculate PIT values but they do not apply this knowledge. This project aims provide accounting students with the experience of submitting a PIT form sent by companies in the official e-Government application. For this it was been developed a simulator which mimics the official e-Government tool, the PIT Form Simulator. A simulator because with simulation students can learn by doing their theoretical knowledge without fearing real consequences [3]. PIT Form Simulator imitates the behavior and interface of the official application. To achieve this goal it was built a simulator that mimics the interface and the behavior of the official.

After providing an introduction to contributes of simulation in education, this paper presents the different stages of "PIT Form Simulator" construction, based on Robinson methodology [4-6], which identifies four main stages: real system (problem), conceptual model, computer model and solutions/understanding. Ultimately, some final remarks are presented regarding the construction and results of the simulator.

2. Simulation in education

Simulation is widely used and already demonstrated to be an important tool in various different areas [7-10]. In education area simulation is also a well-known technique.

Simulation began to stand out in military training (e.g. the "blue box" flight simulator), medicine (e.g. anatomical representations of the human body) and scientific disciplines (e.g. mathematics, chemistry and physics) [11-14]. This because through simulation solders and students can apply their theoretical knowledge in a safe environment, where they could learn from their mistakes without serious consequences. However, simulation was very expensive, especially the simulation performed in computers.

With computer proliferation, simulation increased its capabilities and decreased its costs, opening doors to other areas like, for instance, business companies and management schools. In companies simulation can test and explore, allowing to learn by doing without fearing the real consequences of failures [3, 12, 14-16]. Currently there are many examples of the application of simulation in this area. Production lines, supply chain, marketing, project management, accounting and fiscal are some examples of applications [3, 17-19].

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