

PAN AFRICA BUSINESS SIMULATION GAME

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ABSTRACT

Economists have demonstrated the existence of a positive correlation between management quality and the country's economic performance. In turn, business simulation games have shown their educational effectiveness in developing management skills crucial for African countries. However, its use is still incipient, although they present different characteristics favourable to its implementation, for example: The African Continental Free Trade Area, the Digital Transformation Strategy Project for Africa (2020-2030) and The Pan-Africa Games Group. They also present singular characteristics such as the predominance of the informal sector, political instability and high corruption rates, these are factors that influence the design and adoption of a Pan-African Business Simulation Games Framework suitable for this specific context. This proposal aims to contribute a gaming framework to support collaborative development and appropriation by the end-users and Multi-User with contents representative of their contextual diversity. The successful EVER project and Bootcamp created by the Mozambican firm ITIS, which adopted a lean startup methodology to add local content in Business Games, can serve as inspiration for the PABSG.

Keywords - Game-Based Learning, Business Simulation Game, Pan Africa, Game Design

INTRODUCTION

The use of Business Games or Business Simulation programs is consensual in the literature that it started 3 thousand years before the common era and became massive around the 50s with the development of computing. The process since that decade has been accompanied by the emergence of international associations such as ABSEL, ISAGA, and others dedicated to research, research publication and programme proposals.

The African continent, despite the lack of companies and organisations to provide internships and other practical activities to young people, who make up the majority of the population (generation Z), does not record the use of business games, which have proven their effectiveness at the didactic level. The specialised organisation Pan Africa Group Games was only formed in 2021. Projects based on simulations and virtual reality have been used not only because of their proven effectiveness, but also because they reduce risks, costs and time, if the activities had to be carried out in a real context. It is in this perspective that the present article aims to propose the design of Framework of Pan - African business games, and for this it was developed research based on literature review and qualitative research resulting from the experience of the author who was tutor of the project SPEE, EVER and Bootcamp promoted by the company ITIS in Mozambique. ITIS has identified a problem that can be analysed on the basis of figure 1 with an exposure access problem tree for management and entrepreneurship practices (Appendix 1, Figure 1 tree problems).

LITERATURE REVIEW

On one hand, economists and social science researchers have demonstrated the existence of a positive correlation between management quality and the performance of companies, people and therefore the country's economy (Bloom and Reenen, 2010; Bloom, Genakos, Sadun, and Reenen, 2012) and, on the other hand, business simulation games, since the 1950s, have demonstrated their pedagogical effectiveness in the development of management skills such as communication, teamwork, strategy definition, among others (Cannon, Yaprak, and Sasser, 2002; Halpin, 2013; Shami, Box, Fort, and Gordon, 2004) that are crucial for developing countries (Nunes, Roque, and Nunes, 2016). Approaches on the effectiveness of entrepreneur simulation games have been made in the context of game-based learning, serious games (Susi, Johanneson, Backlund, 2007), gamification (McGonigal, 2011; 2017), the latter's effectiveness is questionable (Mekler, Brühlmann, Opwis, and Tuch, 2013; Mekler, Brühlmann, Tuch, and Opwis, 2017). There are several empirical studies supporting the effectiveness of business simulation games, in their different types (conceptual, top, functional (Faria 2001) and interventions at publication level made by organisations specialised in learning games, most of them created more than 60 years ago (Klabbers, 2006).

However, despite the African continent has a higher predominance of developing countries, the use of games is very incipient. Nevertheless, awareness and opportunities for games adoption increase with a majority of young population (15 years old) with access to technology (GSMA 2022), the significant improvements in the business environment index (World Bank, 2020a), The African Continental Free Trade Area (AfCFTA) (World Bank, 2020b), the Digital Transformation Strategy Project for Africa (2020-2030). The Pan-Africa Games Group (PAGG) is the first games organisation representing more than 10 African countries, with over 200 professionals and 8 different languages. PAGG aims to harness the power of gamification to create fun ways to solve some of Africa's challenges, including health, education, women empowerment and climate change. Despite these advances, other characteristics common to most countries still persist, namely, predominance of the informal economy (Mahajan, 2013; Silva, 2010), corruption (Neo-Patrimonialism) (Acemoglu and Robinson, 2012; Dias, Lúcio, and Coelho, 2015, Fukuyama, 2015; Gomes, 2012) and political instability (Acemoglu and Robinson, 2012; Dias, Lúcio, and Coelho, 2015, Fukuyama, 2015; Castells, 2003; Gagás, 2022).

According to various research on business simulation games, they can be defined as simulators that combine organizational context models with mathematical models to simulate administrative processes in an economic context that should be realistic (Classe, De Araujo, Xexéo, and Siqueira, 2019; Hall, 2009; Pereira and Roque, 2009). The Business Games can present some similarities, however can be different accord several elements such as, purpose, target group, rules, among others (Appendix 2, Table 1).

The proposed design process should observe similar phases to scientific research, starting with a clear definition of the goal that is intended to achieve with the game, then the study of existing solutions on the market, characteristics and survey of existing research on the subject, as shown in Appendix 2, Table 2). The conception of the game proposal must go through successive validation tests. After the validation tests it is possible to train the trainers or teachers who will be responsible for using the system for training.

PROJECT EVER CASE FROM ITIS

ITIS Companies (Institute of Technology, Innovation and Services)¹ was created in 2010 in Mozambique, with the Slogan "*Innovation as Continuous Innovation*" having initially as main product, Business Simulation Games. The Business Simulation Games started in Mozambique in 2005 with Instituto Superior de Ciências e Tecnologias de Mozambique (ISCTEM) with platform acquired in Expandindustria company based in Portugal, followed in 2009 by Eduardo Mondlane University (UEM) acquired in the University of Aveiro (Portugal). In 2010, ITIS launches the first Business Simulation Game called *System of Business Practices and Entrepreneurship* (SPEE), becoming the first and only startup in Mozambique in the serious games sector.

"startups are not simply smaller versions of large companies, but a temporary organization looking for a scalable, recurring and profitable business model" (Blank and Dorf, 2020). ITIS, scaled up with new business model based on annual, semester, per student licenses and by designing a simulator based on local reality and developed in a customer interaction perspective, i.e. a *lean startup* approach (Ries, 2019). The scalable recurring model can be noted by the growth in Appendix 3, Figure 2), where between 2010 to 2017, 10 higher education institutions started using SPEE, and 2019 bootcamp Business Simulation was tested for adolescents between 11 years to 17 years of age (Appendix 4, Brochure 1) and in 2020 began an internationalization process with EVER project (virtual internships) involving Portuguese-speaking countries, namely: Brazil, Angola, Mozambique, Cape Verde, São Tomé and Príncipe (Appendix 5, Brochure 2). Over the 12 years of SPEE, trainees have created successful companies, such as Edilson Alberto (18 years), Prince Chone (17 years) and others², so it can be said that the product fits the concept "Job To be Done - (JTBD)" (Christensen, Hall, Dillon, and Duncan, 2016) by promoting the spirit, entrepreneurial attitude and good management practices for which it was designed

The EVER experience involved students from five Portuguese speaking countries, 4 virtual companies were created in Mozambique. The participants showed enthusiasm in the e-learning project, and despite not knowing the Mozambican legislation and having the first contact with SPEE in EVER, it was possible to see that young Africans are "native speakers" in digital tools (Susi, Johannesson, and Backlund, 2007). Participants noted that business games are key to developing skills such as professionalism, leadership, teamwork, critical thinking, assertiveness, time management, diversity and responsibility (Wolfe and Roberts, 1993). In the experiment it was possible to see that African countries with few resources to acquire laboratories, can benefit from gaming technologies to simulate various scenarios (Nunes, Roque, and Nunes, 2016). The purpose of SPEE is to develop management and entrepreneurial skills, and at the moment it is not known whether the participants of the EVER project created companies in their respective countries, as happened in the Bootcamp and in the Universities in Mozambique, despite the fact that in the researches done the business simulation players were successful in their professional careers (Wolfe and Roberts, 1993).

CONCLUSION

The design of the Pan Africa Business Simulation Game Framework can be inspired by the various theoretical approaches and the ITIS experience with EVER and Bootcamp. The success of EVER and Bootcamp was due to the fact that the target group was young, familiar with information technologies and above all to the design that took into consideration the local content (Glocal) contained, based on “the lean start-up” development.

Given the predominant characteristics of the African context (informality, corruption -neopatrimonialist/patronage and political instability) to ensure inclusive (lean) development, it is possible to include functionalities that allow its appropriation and creation of content by end users and Multi-User can provide the players virtual interaction and work together to accomplish shared objectives without travel expensive. This is a global trend in participatory cultures that translates into the design of interactive technologies that support appropriation and reconfiguration by end-users and multi-users. Artificial intelligence can also be used to capture the local experiences of the diverse contexts of African countries.

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