

## **3D SIMULATION FOR THE FORMER SÃO JOÃO DA BAHIA THEATER IN THE CONTEXT OF SALVADOR-BAHIA IN THE 19TH CENTURY**

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### **ABSTRACT**

This article describes the development of the São João da Bahia Virtual Museum, a project consisting of a three-dimensional (3D) modeling and imaging program that recreates beyond the theater, the region where today Castro Alves Square (formerly Sé district). This Virtual Museum takes the visitors to the historical center of the capital through Salvador in the 19th century, simulates chatting with the public and getting to know the political and artistic icons of the time, for example, the Emperor Dom Pedro II, the poet Castro Alves, the musician Carlos Gomes and the actor and singer Xisto Bahia. The old cultural Theater began to be built in 1806 and was inaugurated in 1812. The Soteropolitan place was the first large Brazilian theater, with a sitting capacity for about 2 thousand people.

The 3D simulation of the São João da Bahia Theater has its implications for teachers, students and researchers of History, Geography, Portuguese Language, Mathematics, Music, Arts, Architecture and other teaching and learning processes to learn various aspects of the São João da Bahia Theater and the city of Salvador during the 19th century.

**Keywords:** 3D Simulation, virtual museum, design basic research, socio-construtivism, Lev Vygotsky, São João da Bahia Theater.

### **INTRODUCTION**

This work on the development of the São João da Bahia Virtual Museum, a project consisting of a three-dimensional (3D) modeling and imaging program emerged with the need to recover a historical and cultural heritage that existed during the 19th century and ended physically in the 20th century, but that for a number of reasons still remains between us, in the contemporaneity of the 21st century. The 3D computing environment was opted to represent the São João da Bahia theater as close as possible to the nineteenth century and that dialogue with this current subject was necessary to find epistemological bases that would support our proposal of a Virtual Museum with a socio-constructivist approach and with Dialogical bases. The DBR (Design Basic Research) methodology enabled us to search for practical and applied solutions and the epistemology in Antonio Gramsci, (1989) Praxiologia.



**Image 1:**  
**3D Simulation of São João da Bahia Theater**

In this context, we sought shelter in sources, in diverse collections, both in physical and digital physical environment, as well as in our habits, traditions and customs that the previous centuries reported us to compose the collections that gave body and form to the simulation in 3D, São João da Bahia Theater.

Chu (2007) found that online scenario-based learning provide an opportunity to the learners to virtually immerse in a scenario which can enhance their learning and knowledge.

Our three-dimensional (3D) modeling and imaging program of the São João da Bahia Virtual Museum provides such immersive environment where the visitor virtually experiences the culture and society of that period of time.



**Image 2:**  
**Culture and society representation through São João da Bahia Theater**

## **SOCIO-CONSTRUCTIVISM**

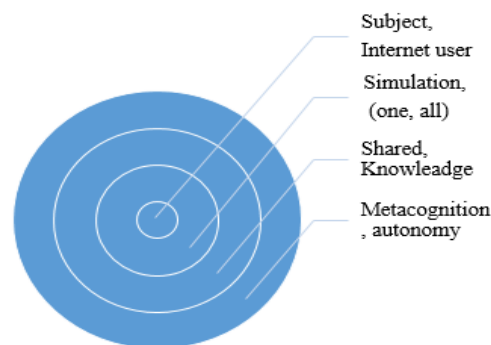
In this way, we dialogued with the socio-constructivist principles in Lev Vygotsky (1987, 2007). This approach helped us in the issue of mediation, in the Immediate Development Zones, because like this author we understand that man is from the interaction, the encounter with the other.

In M.M. Bakhtin, (2005, 2008) regarding the issues of dialogue and polyphony, which helped us to base the theoretical contribution where nothing is dead absolutely and that the subjects that emerged from the contexts researched did not tell us a story, but they answered us from the problems and questionings of contemporaneity. Just as these authors the research, the Virtual Museum, 3D simulation, also counted on the epistemological contribution of Antonio Gramsci (1989), in which man can not be analyzed outside its social context, nothing can be neglected, nothing can be denied, the subject can and should be a philosopher of himself.

Parallel to these authors we also work R. Martineau, (1997) who brings us the roots of history as a problem, because without problem there is no history, that is, our current questions are also answered from our past, we can be historians from ourselves.

In this way, in addition to these principles and epistemologies, we dialogue with historians and diverse areas such as music, art in general, geography, mathematics, architecture, designs, new languages for History and Human Sciences and Technologies Information and Communication Technologies.

Thus, after drawing the structural logic of the thesis from these constant dialogues we end up with the framework we call socio-constructivist and Dialogical Design, where we summarize all the actions, interactions and interactivities, and why the choice of physical and human objects that were put in practice through the 3D Virtual Museum, São João da Bahia Theater (Matta, 2013; Robatto, 2009).



**Diagram:**  
**Virtual Museum, Collaborative Networks**  
(Source: Maria Antonia Lima Gomes, 2017)

### 3D SIMULATION OF THE SÃO JOÃO DA BAHIA THEATER

But why the choice of Teatro São João da Bahia for 3D simulation? First, because it was the first large theater built in Brazil, around 1806, inaugurated in 1812 and destroyed by a fire in 1923, second, by the Its architectural imposition already deserves a simulation in 2D and 3D, but beyond this factor it passed to the level of vehicle and reflection of the socio-cultural relations dynamics of the City of Salvador-Bahia, during the 19th and 20th century.

Sharma and Mishra (2007) indicate that 'pedagogy is the science and art of teaching and learning in general' and suggested that to use a technology for effective teaching and learning, we need to follow and adapt the set of rules brought in by that technology. In this case, Teatro São João da Bahia, for having represented and being a vehicle of our culture, our habits, our customs, our traditions deserved a revisitation of the dynamics

that represented throughout the 19th and 20th century and, we believe, still be alive among us, subjects in the contemporary world.



**Image 3:**  
Culture and society representation through São João da Bahia Theater

In this way, the theater São João da Bahia and the context of the 19th century already deserved a virtual museum in 2D and 3D so that the present and posterity interacted through and with him.

Fact is that the simulation in 2D and 3D was built and when the community was presented between the days, March 13, 2017 to May 12, 2017, through the site [www.teatrosaojoaodabahia.net.br](http://www.teatrosaojoaodabahia.net.br), we obtained the following scientific results:

- ✓ Internet users from 48 countries or visited the page of the Virtual Museum, São João da Bahia Theater,
- ✓ navigated within it with a total of 169 accesses,
- ✓ in Brazil 320 accesses and in Bahia, 2,266 accessions,
- ✓ we have been on all continents,
- ✓ more than 2,000 visits were registered inside the museum.

People talked with characters outside the theater, the outside ambience as well as with the characters inside the theater, the maestro Carlos Gomes, the poet Castro Alves, the singer Xisto Bahia, the international actress Klementina Kalasova and others. Anderson and Kanuka (2009) highlighted the use of Internet as it "provides a new educational context or learning environment, such as a completely virtual education institution (e.g., virtual school or university, or private training organization) or augmentation of classroom-based schooling (so called blended-learning) with network mediated activities." Anderson & Kanuka further report that virtual learning environments (e.g., learning contexts build in SecondLife and Active Worlds) can also be created using Internet in which the physical laws of nature can be transcended (2009).

Knowledge was built and revisited, collaborative networks were made possible by the Virtual Museum, the partnerships that constituted the logo of the research and its practical application, such as numerous communication networks in Brazil, Bahia and outside Brazil, equally beautiful examples of polyphonies and dialogues by Music school of the Federal University of Bahia, led by Prof. Dr. Lucas Robatto, (2017) and, for

example, of collaborative networks, Areas of Immediate Developments with the participation and collaboration of Dr. Ramesh C. Sharma (Sharma, 2017).

## CONCLUSIONS AND IMPLICATIONS

Therefore, these scientific results proved that a Virtual Museum, or a 3D simulation, that our case was about the Teatro São João da Bahia and Salvador-Bahia, from the nineteenth century, can be proved to be socio-constructivist and dialogical (Gomes, 2017). However, the challenges are numerous, although today we already have several programs, software, that allow a simulation as real as possible of the object modeled they still lack a greater malleability in terms of their configurations and dimensionalities and cheapen the costs when the software used is not free software.

The implications are different, because through this Virtual Museum Teatro São João da Bahia with socio-constructivist Approach we find the meeting of people in different times, the dialogue, mediate in the virtual learning environment through the voices that emerge in the context of the Virtual Museum, The polyphony, because the subjects, the characters that are in it, did not tell us only stories, but they dialogue with and through them, the collaborative systems and networks, made possible by the creation of the Immediate Development Zones.

Regarding women apprentices is more a niche than opens up in a field theoretically dominating by men. In addition there are several possibilities of simulation within the domain of virtual museums that can be created and made feasible from the culture in which each person lives respected its principles, its roots. Thus creating alternatives or means for research, learning and sustainability, mainly for the field of work. This doctoral thesis counted on the guidance of Prof. Dr. Alfredo Matta, from the State University of Bahia and Prof. Dr. Lucas Robatto, of the Federal University of Bahia

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