

# Online Art Gallery Exhibition and Auction System for Indigenous Art Works

Chidi Ukamaka Betrand<sup>1,\*</sup>, Oluchukwu Uzoamaka Ekwealor<sup>2</sup>, Chinazo Juliet Onyema<sup>1</sup>

<sup>1</sup>Department of Computer Science, School of Information and Communication Technology, Federal University of Technology Owerri, Owerri, Nigeria

<sup>2</sup>Department of Computer Science, Faculty of Physical Science, Nnamdi Azikiwe University, Awka, Nigeria

## Email address:

chidi.betrand@futo.edu.ng (Chidi Ukamaka Betrand)

\*Corresponding author

## To cite this article:

Chidi Ukamaka Betrand, Oluchukwu Uzoamaka Ekwealor, Chinazo Juliet Onyema. Online Art Gallery Exhibition and Auction System for Indigenous Art Works. *International Journal on Data Science and Technology*. Vol. 8, No. 3, 2022, pp. 55-60.

doi: 10.11648/j.ijdst.20220803.12

**Received:** July 4, 2022; **Accepted:** July 19, 2022; **Published:** October 18, 2022

---

**Abstract:** Art is a diverse range of human activities in creating visual, auditory or performing artifacts (artworks), expressing the author's imaginative, conceptual idea, or technical skill, intended to be appreciated for their beauty or emotional power. In their most general form these activities include the production of works of art, the criticism of art, the study of the history of art, and the aesthetic dissemination of art. Music, theatre, film, dance, and other performing arts, as well as literature and other media such as interactive media, are included in a broader definition of art. The mishap faced by these artists led to the development of this work. This research work is centered on solving the problems faced by local artist having no means of displaying their art works to a wide audience, difficulty in exhibiting their works due to cost intensive and also lack of support and patronage by the government or other organizational bodies thereby hiding the rich culture and heritage of the nation. The methodology used in the development of the new system is the waterfall methodology. The system was created using the waterfall methodology, the language used was React.js and Node.js. with MongoDB. The result shows that Nigerian artists are availed with an exhibition infrastructure that is out of their reach, thereby enabling them reach out to a wider audience.

**Keywords:** Discussion, Forum, Exhibition, Fair, Auction, Museum, Gallery

---

## 1. Introduction

An art museum or gallery is a building or space for the exhibition of art, usually visual art. Museums can be public or private, but what distinguishes a museum is the ownership of a collection. An art exhibition is traditionally the space in which art objects (in the most general sense) meet an audience. Until the 17th century, art referred to any skill or mastery and was not differentiated from crafts or sciences. In modern usage after the 17th century, where aesthetic considerations are paramount, the fine arts are separated and distinguished from acquired skills in general, such as the decorative or applied arts [1]. Throughout history, large and expensive works of art had generally been commissioned by religious institutions and monarchs and been displayed in temples, churches, and palaces. Although these collections of

art were private, they were often made available for viewing for a portion of the public. In classical times, religious institutions began to function as an early form of art gallery. Wealthy Roman collectors of engraved gems (including Julius Caesar) and other precious objects often donated their collections to temples. It is unclear how easy it was in practice for the public to view these items. The existing relationship between arts, education and special education by presenting current research on the topic and then sharing the results from a national forum of stakeholders from both fields [14]. Regardless of barriers, physical or environmental, all students need the opportunity to learn in and through the arts. The arts allow students to use creativity and problem solving, as well as provide opportunity for self-expression.

There is current research supporting the benefits of using art to teach students with disabilities, but there is not much work being done to unite the professionals who could design

these programs for students [2]. For example, the fields of arts education and special education are separate. Realizing the need for an integration of arts education and special education, the John F. Kennedy Center for the Performing Arts and its affiliate VSA (formerly Very Special Arts) hosted a national forum on this topic in the summer of 2012. At this forum, leaders in the fields of arts education and special education came together to share their knowledge in each field, eventually making recommendations for a national agenda stating that the arts are a necessary component in the education of students with disabilities [2]. This forum produced two recommendations, the first was that an informational hub/technical assistance center needs to be created to serve as a resource for educators in the arts and special education in the form of a website. The second, was to create a consortium of professionals from the arts and special education communities that could move forward with a common goal [3]. A main priority of this consortium would be to provide professional development for educators including teacher preparations programs, as well as providing in-service trainings for general educators, paraprofessionals, and art teachers, teaching the importance of integrating the arts into special education and practical methods on how to do this.

## 2. Concept of Art Exhibition

Art exhibitions include an array of artifacts from countless forms of human making: paintings, drawings, crafts, sculpture, video installations, sound installations, performances, interactive art, etc. Art exhibitions may focus on one artist, one group, one genre, one theme or one collection; or may be organized by curators, selected by juries, or show any artwork submitted. Fine arts exhibitions typically highlight works of art with generous space and lighting, supplying information through labels or audio guides designed to be unobtrusive to the art itself. Exhibitions may occur in series or periodically, as in the case with Biennales, triennials and quadrennials.

There are a number of online galleries that represent many artists working in different media and genre. The artist either pays a monthly fee or agrees to a commission paid when the work is sold. These are usually non-exclusive and are therefore a risk free opportunity for the artist to sell their work worldwide. They can be found by using search terms such as "original art" or "online art gallery". Viewing art online is an improving experience. Ideally, art should appear exactly as it would if seen in the real world, but there are factors that limit the extent to which this is possible. Factors include:

The increased adoption of broadband, and improvement in web programming techniques opens up the opportunity for improved display of art online. Whilst no online gallery yet uses light filtering effects, and 3D photography is not yet available, much richer images and improved display techniques provide the viewer with a much richer experience [4]. The viewer may be offered the option of

zooming such that the texture or pigmentation may be examined. Also in some cases the size of the work can be better appreciated by showing it alongside an image of a person of average height. Another advantage of Online Galleries is that the art buying public is broadening but people are still somewhat intimidated by most commercial Art Galleries. They think they know nothing about art and I believe that in some cases this disadvantages the sales of some artists. If the potential buyer has access to a wide range of art that they can view in the comfort and safety of their own home they will tend to look a bit deeper and get to know what and who they like [5].

An exhibition, in the most general sense, is an organized presentation and display of a selection of items. In practice, exhibitions usually occur within a cultural or educational setting such as a museum, art gallery, park, library, exhibition hall, or World's fairs [15]. Exhibitions can include many things such as art in both major museums and smaller galleries, interpretive exhibitions, natural history museums and history museums, and also varieties such as more commercially focused exhibitions and trade fairs [6]. The art works may be presented in museums, art halls, art clubs or private art galleries, or at some place the principal business of which is not the display or sale of art, such as a coffeehouse. An important distinction is noted between those exhibits where some or all of the works are for sale, normally in private art galleries, and those where they are not. Sometimes the event is organized on a specific occasion, like a birthday, anniversary or commemoration [7]. There are different kinds of art exhibitions, in particular there is a distinction between commercial and non-commercial exhibitions. A commercial exhibition or trade fair is often referred to as an art fair that shows the work of artists or art dealers where participants generally have to pay a fee. A vanity gallery is an exhibition space of works in a gallery that charges the artist for use of the space. Temporary museum exhibitions typically display items from the museum's own collection on a particular period, theme or topic, supplemented by loans from other collections, mostly those of other museums. They normally include no items for sale; they are distinguished from the museum's permanent displays, and most large museums set aside a space for temporary exhibitions.

Exhibitions in commercial galleries are often entirely made up of items that are for sale, but may be supplemented by other items that are not. Typically, the visitor has to pay (extra on top of the basic museum entrance cost) to enter a museum exhibition, but not a commercial one in a gallery. Retrospectives look back over the work of a single artist; other common types are individual expositions or "solo shows", group expositions (collective exhibitions or "group shows"), or expositions on a specific theme or topic ("survey shows"). The Biennale is a large exhibition held every two years, often intending to gather together the best of international art; there are now many of these. A travelling exhibition is another category of art exhibition. Exhibitions of new or recent art can be juried, invitational, or open.

### 2.1. The Resultant Effect of the Inclusion of Art in Special Education

The existing relationship between arts education and special education by presenting current research on the topic and then sharing the results from a national forum of stakeholders from both fields. Regardless of barriers, physical or environmental, all students need the opportunity to learn in and through the arts. The arts allow students to use creativity and problem solving, as well as provide opportunity for self-expression [2]. A Review of the Literature language but art allows them to do this. There is current research supporting the benefits of using art with students with disabilities, but there is not work being done to unite the professionals who could design these programs for students. For example, the fields of arts education and special education are separate. Realizing the need for an integration of arts education and special education, the John F. Kennedy Center for the Performing Arts and its affiliate VSA (formerly Very Special Arts) hosted a national forum on this topic in the summer of 2012. At this forum, leaders in the fields of arts education and special education came together to share their knowledge on each field, eventually making recommendations for a national agenda stating that the arts are a necessary component in the education of students with disabilities. This forum produced two recommendations, the first was that an informational hub/technical assistance center needs to be created to serve as a resource for educators in the arts and special education in the form of a website. The second, was to create a consortium of professionals from the arts and special education communities that could move forward with a common goal. A main priority of this consortium would be to provide professional development for educators including teacher preparations programs, as well as providing in-service trainings for general educators, paraprofessionals, and art teachers, teaching the importance of integrating the arts into special education and practical methods on how to do this.

### 2.2. Review of Related Works

Younan, 2015 investigated the creative engagement with digital 3D models of museum artifacts and gives insight into new uses of museum collections enabled by digital scanning, editing and 3D printing technologies. Digital 3D models of museum artifacts are malleable and increasingly easy to use [8]. Additionally, freely available 3D software has made 3D scanning, editing and manufacturing possible for non-specialists. These technologies allow users to create new artworks through the creation and transformation of digital replicas of museum artifacts. Examples of creative works, taken from two case studies that involve the creative use of digital reproductions of museum artifacts are presented in this paper. These projects are illustrative of a larger trend: the digital ‘poaching’ of heritage artifacts. This paper examines how digital 3D technologies can foster creative forms of museum engagement, democratize access to museum

collections and engage users with personal forms of museum experience.

Poli, A. M., Koro, M., & Klokome, C. N. (2013) presented Local Area Artworks, a system enabling collaborative art interpretation on-site deployed during an exhibition in a local art gallery. They explored ways to re-connect people to the local place by making use of their personal mobile devices as interfaces to the shared physical space by re-emphasizing the local characteristics of wireless networks over the global connectivity to the Internet [9]. With a collaborative writing system in a semi-public place, local art discussions was encouraged and provide a platform for the public to actively participate in interpretations of individual artworks.

Auctioneer Strategy and Pricing - Evidence from an Art Auction. The role of auctioneer's strategy used in determining pricing at art auctions was examined [10]. It characterizes the role of auctioneers, prices that the paintings were sold at and tests a series of hypotheses about their behavior. It examines the relationship between the auctioneer's estimates and realized prices. It determines whether the auctioneer and the market evaluate different attributes of different paintings differently and finally, an analysis is undertaken on the determinants of prices in the art market as suggested by hedonic regression.

The impact of art criticism in an online gallery for independent artists was reported [11]. Most of the participants reported positively on their experience in engaging on the e-platform ARTIQUE whereby they were able to improve their ideas, creativity, techniques and skills. The findings suggest that independent artists could engage with experts on an online platform like ARTIQUE to hone their skills.

Project for an Online Art Gallery as Social Cooperative [12] shows the commercialization of art work has been mainly in the hands of physical art galleries that charge the artists a considerable amount of commission, usually around 40%, and work only with already known artists. The goal is to develop an online art gallery, by the name of MEcenas, that aims to help young artists that are still in school to achieve some levels of projection in the market while, at the same time, making art and culture available at a reasonable price so that an increasing portion of society may introduce its benefits into their daily lives.

The impact of exhibitions on the auction price of work for living artists [13] study provided a theory-guided empirical analysis of the impact of exhibitions on the price of work for living artists, specifically taking into account whether these exhibitions were solo or group and whether they occurred at “major” museums or galleries, or institutions of a particularly high caliber as related to their attendance and prestige. The goal which is to develop and apply findings to this analysis focusing on exhibition price associations for contemporary art which is particularly important in light of recent developments in the fine art market is evaluated and proven to be effective.

### 3. System Analysis

#### 3.1. Analysis of the Existing System

The process of enquiry about the available properties or retrieving of information is being done manually in Exhibition Service long before now. This manual procedure, from investigation has many problems due to the increasing number of clients seeking information and location of the organization and also some human limitations. Indigenous talent has no means of displaying their art works to a wide audience. So, the artists have no other choice than to manually showcase their exhibition only to those around them thereby limiting their general visibility.

Local artists are unable to benefit from the economic potential of their art works. The artist has to manually go round states and countries looking for people who will hire them.

#### 3.2. Analysis of the Proposed System

The proposed system is a web-based exhibition system, which showcases the work of local artist. The system will be made in a way to enable local artist auction their works to reach a wide audience by using a website (a good user interface system and interaction) that can be accessed by individuals looking for art works to buy. The local talent obtainable in Nigeria find it difficult to display their works and benefit from its economic potential due to the absence of exhibition infrastructure that will enable them show off their works to a wide audience without spending much so this system solves this problem.

In addition, the proposed system will have an auction bidding system, where a buyer with the highest amount get the art works. The system thus, will automatically showcase indigenous arts to thousands of people globally thereby, creating an avenue for the artists to host exhibitions freely.

Local talents will be displayed to an international audience via the online system- It will provide an avenue where the artist can show case their talent. Also, improve in the economic benefits of both the artist and the government.

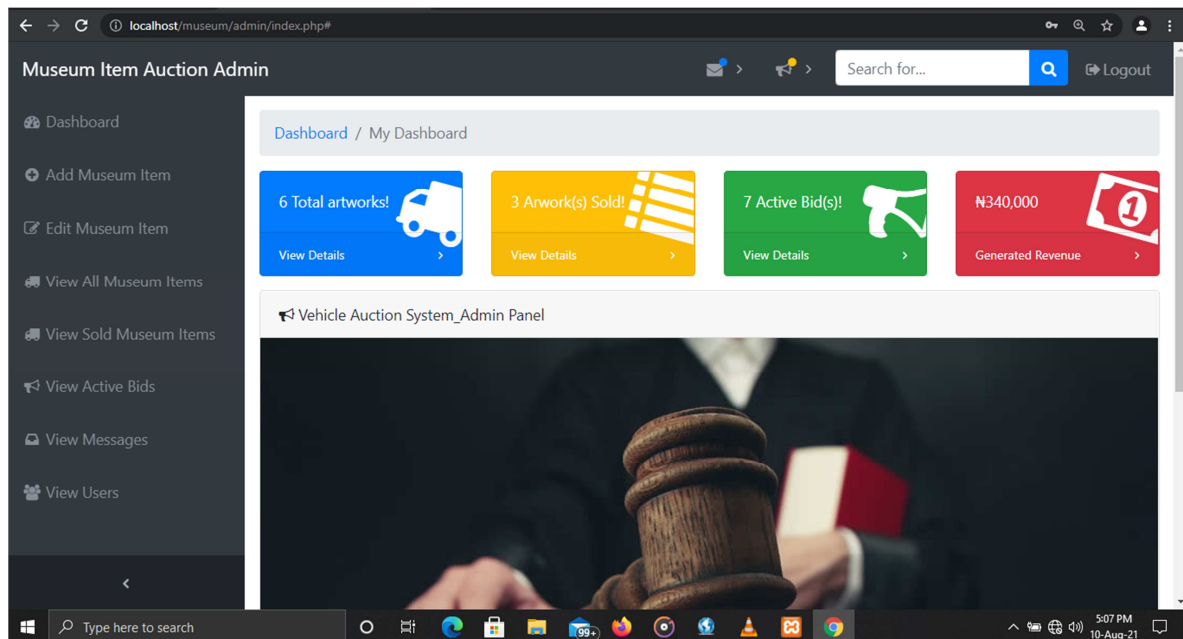
### 4. Art Gallery Exhibition

The main goal of this research is that local talent obtainable in Nigeria find it easier to display their works and benefit from its economic potential due to the inclusion of exhibition infrastructure that will enable them show off their works to a wide audience without spending much. Some of the problems of the existing system include Indigenous talent have no means of displaying their art works to a wide audience. Hosting art exhibitions is cost intensive, thus making it difficult for local artists to exhibit their works. Due to the poor publicity of Nigerian artists, these artists lack support and patronage, thereby hiding the rich culture and heritage of the nation. The objectives of the new system include Providing an online system for the exhibition and auction of indigenous art works. Creating an enabling environment for local artists to host art exhibitions without making capital expenses. To create an online auction feature to enable buyers place their bid. The research methodology used is the SSADM, which fully means Structured System Analysis and Design Methodology. The approach used is the Data Flow Model. In this project work, the approach was used to illustrate the flow of authentication before access is granted to the network. The contribution of this study to the growth of ICT in Nigeria is By the implementation of the new system, Nigerian artist will be availed with an exhibition infrastructure that is out of their reach, thereby enabling them reach out to a wide audience. This will promote the Nigerian cultural heritage and increase the patronage of Nigerian art works.

Figure 1. Login page.

**Table 1.** Test Results.

S/N	TEST	RESULT EXPECTED	RESULT OBTAINED
1.	Performance Test	The new system should be able to allow the artist to upload their artwork online for exhibition and auctioning	The software was able to achieve the expected result as tested by some of the artist.
2.	Usability Test	The new system should be user friendly and easy to use by artist and customers.	The software was easy to use by the users who tested.
3.	Security Test	It should be able to authenticate a user before granting access to the full features of the software.	It granted access to the software only after the user was logged in.
4.	Installation Test	The new system should be able to run on any windows system that meets the software and hardware requirements regardless of the CPU configuration.	The new software ran smoothly on the systems that were tested which includes 32bit and 64bit systems.

**Figure 2.** System Platform.

## 5. Conclusion

The incorporation of this system avails the Nigerian artist of a wider exhibition structure for their works. The motivation for this study which is that local talent obtainable in Nigeria find it easy to display their works and benefit from its economic potential due to the absence of exhibition infrastructure that will enable them show off their works to a wide audience without spending much was achieved. The contribution of this study to the growth of ICT in Nigeria is by the implementation of the new system, Nigerian artist will be availed with an exhibition infrastructure that is out of their reach, thereby enabling them reach out to a wide audience. This will promote the Nigerian cultural heritage and increase the patronage of Nigerian art works.

## References

- [1] Kennicott, P. (2011). "Google Art Project: 'Street view' technology added to museums". The Washington Post, Arts Post. Archived from the original on 2012-03-09. Retrieved 2021-07-02.
- [2] Malley, S. M., & Silverstein, L. B. (2014). Examining the intersection of arts education and special education. *Arts Education Policy Review*, 115 (2).
- [3] Taylor, D. & Coleman, L. (2011). Determinants of Aboriginal Art, and Its Role as an Alternative Asset Class, *Journal of Banking and Finance*, 35 (6), p. 1519–29.
- [4] Rabkin, C., & Redmond, R. (2006). The arts make a difference. *Educational Leadership*, 63 (5), 60-64.
- [5] Maddison, D., & Jul Pedersen, A. (2008). The death effect in art prices: evidence from Denmark. *Applied Economics*, 40 (14), 1789-1793.
- [6] Giaccardi, E. (2006). "Collective Storytelling and Social Creativity in the Virtual Museum: A Case Study". *Design Issues*, 40, 4.
- [7] Hogan, S. (2001). *Healing Arts: The History of Art Therapy*. Jessica Kingsley Publishers, 9, 40-51.
- [8] Younan, S. (2015). Poaching museum collections using digital 3D technologies. *Journal of Science and Technology of the Arts*, 7 (2), 25-32. <https://doi.org/10.7559/citarj.v7i2.152>
- [9] Poli, A. M., Koro, M., & Klokumone, C. N. (2013). Local area artworks: collaborative art interpretation on-site UbiComp '13: The 2013 ACM International Joint Conference on Pervasive and Ubiquitous Computing Zurich Switzerland September 8 - 12, 2013.

- [10] D'Souza, C. & Prentice, D. (2002). Auctioneer strategy and pricing: evidence from an art auction. *Marketing Intelligence & Planning*.
- [11] Maaruf, S. Z., Mon, N. S. M. & Supramaniam, K. (2020). ARTIQUE: An Art Criticism Session through Online Gallery for Independent Artistists. *International Journal of Academic Research in Business and Social Sciences*, 10 (14), 102-113.
- [12] Carvalho, C. M. D. (2015). Project for an online art gallery as social cooperative.
- [13] Wilkinson, R. P. (2019). Diaspora's Dialect: Cultural Exchange and the Tranformation of Jamaican Patois in the Greater Toronto Area.
- [14] Subramaniam, M., Jaffri, H., & Talib, P. A., (2016). Teaching for Act Criticism: Incorporating Feldman's Critical Analysis Learning Model in Students' Studio Practice. *Malaysian Online Journal of Educational Technology*, 4 (1), 57-67.
- [15] Bianchini, R. (2017). When museums become virtual - Part 1: the origins. *Inexhibit magazine* 14, 487-516.