TRENDS IN DESIGN TECHNOLOGY IN THE NIGERIAN THEATRE

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This essay discusses evolutionary aspects of design technology in the arts of the theatre. The areas of coverage include scenic/lighting design and technology in the theatre with practical studies/examples in the stage and the screen media. The discourse in this essay is within the context of informing on new developments in this aspect of the Arts of the Theatre. This is based on the fact that the Nigerian theatre experienced some design and technological advancements in recent times, in keeping with the global trends. The first step, naturally, is to know how this new technology works. This essay evolved largely out of this writer's practical experiences in the professional theatre and the television world. The writer participated as team leader and/or member of the crew in charge of some of the practical projects cited. For some of them, reports have been written and presented to the organizations concerned.

New methods and approaches to design continue to evolve all the time. In theatre design, there is a convergence of art and technology and the dynamic nature of the theatre allows for the utilization of science and technology in a composite form. This is so because in every scientific or technological output, there must have been a prior artistic input in the form of design as an integral part of planning.

An artist designs the theatre equipment for the engineers who make it. The theatre professional uses this fabricated equipment for the visual aspects of the theatre. Indeed, over the years, partnerships have developed between theatre equipment manufacturers and the theatre practitioners who are the end users. A good example is in the recently concluded Daar Communications' lighting purchase and installation project. In mid-1999, Daar Communications Ltd., owners of Africa Independent Television (AIT) and Raypower 100 FM broadcast stations operating from Lagos and other parts of Nigeria, opened up correspondence with Strand Lighting Italia on their lighting requirements. After a series of negotiations (done mostly through the Internet by this writer), an

agreement was reached and Strand Lighting built all the lights ordered for to specifications for AIT studios, within a time frame of six weeks. The equipment has since been delivered, installed and is currently being well utilized by the company.[1]

In designing, the designer either changes the existing situation to a preferred one or gives shape and dimension geared towards animating an inanimate material. In any event, design and planning are the very first steps to be taken and the theatre is not an exception. Therefore, designing in the theatre is the visual interpretation of theatre concepts after a detailed study of theatre production process. In implementing the above, the designer uses lines to form patterns and shape. The theatre production process tool usually comes in the form of a script.

The use of automated and computerized lighting systems and the use of the computer aided design (CAD) by theatre scholars and practitioners are two of the latest design and technological advancements being referred to. The commercial use of automated scanners, moving heads and scenic materials like the black star-studded backdrop in Nigeria, began in May, 1997, with the emergence of Zmirage Multimedia Limited on the entertainment technology scene. This is in addition to the digital and computerized control systems.

Lights can be grouped into the conventional and automated types. The conventional lights are the normal floodlights, plano-convex and ellipsoidal spots and the fresnel spots operated in most cases by the dimmers with control systems. The automated lights, as the name implies, are robotic lights most of which have in-built colour and gobo changers. These days, they come as scanners and moving heads. Scanners are automated lights that use the mirror-reflector device to pan and tilt light beams. The beam of most of the scanners pan to 300 degrees and tilt to 180 degrees with the aid of their motorized reflectors. On the other hand, the moving heads are robotic lights whose whole frames rest on a base. The moving heads, being an improvement on the scanners, have the ability to pan and tilt the device 360 degrees in response to commands. There are the fresnel and plano-convex lens types which are controlled via digital controllers or/and the computer. The black star-studded backdrop is a specially built black backdrop with uncountable low wattage lights that sparkle intermittently.

Most of the lights and accessories defined above are controlled via digital, manual and computerized control systems. The manual system can be referred to as the push-pull system, a non-digital system operated manually. Manual dimmer and control systems can be found in most, if not all, the Nigerian universities' art theatres. The Musical Society of Nigeria's (MUSON's) Agip Recital Hall, in Lagos, has a functional 24-channel Strand manual lighting control console while the Shell Conference Hall, located in the same venue, has a computer memory board that was not functional at the time this article was written.

The digital system is a volatile automated memory-based system for data processing and output, while the computer, on the other hand, is a data-processing, storage and output machinery system. Zmirage Multimedia's lighting control systems are both digital and computerized. Global Activity Promotions, a Swiss-based entertainment technology company that designs and builds stages, and designs lighting for concerts in Nigeria sponsored by tobacco companies, also uses the digital and the computerized control systems. These systems are primarily for control purposes. In other words, they are used to configure and direct lights and scenery materials for the stage and screen. The present writer recognises dimmers, digital controllers and the computer as equipment designed for the purpose of controlling the lighting instruments, scenery materials and stage settings, all of which are operational facilities.

We should note that the manual system and the digital system can be used simultaneously while the digital and the computerized can also be used together. Field experience portrays that none of the above systems is used entirely alone in most projects. These days, manufacturers make control systems that combine manual, digital and computerized functions in one compact unit. The Strand 300 and 400 series control consoles are examples of such control systems. They are available in various formats designed for small, medium and large facilities. Most of the types of luminaires and control systems mentioned above were put in use for the December 31st 1999 Millennium Concert at the Tafawa Balewa Square in Lagos, Nigeria. For this Concert, sixty-four conventional lights were wired onto a light console that was both digitally and manually operated, while eight automated lights were wsired into a desktop computer and programmed for the performance. There was

also a digital control board on standby for the automated lights.[2] It is important to note that, earlier on, during the 1991 stage production of Bassey Effiong's adaptation of Chinua Achebe's *Things Fall Apart*, Duro Oni used his then newly acquired Sirius 48 channel memory control system for the lighting.

At this point, it is important to state how the automated lights work. They are usually rigged and powered directly. The computer cable is sent out from the control unit to the various automated lights, which under normal circumstances have an inlet and an outlet. So, this cable goes into an automated light from the control unit and then goes out of same light into another and on and on, up to the last luminaire meant for a given control unit. For conventional lighting, the lights follow the normal wiring onto the dimmer pack procedure after which an adapter is used to adapt it through the pack to the computer for the purpose of control. Thus, the computer, (with the aid of the appropriate software) replaces the lighting console in this case. After the above processes, the lighting programmer sits behind the control unit to programme the lighting movements and cue of the production concerned, and subsequently run the cues for the performance.

It is essential not to confuse the term 'automated/robotic' for 'computerized'. Automated lighting has been defined in an earlier paragraph, in contradistinction to conventional lighting. The entire technical system is computerized when it is masterminded with the aid of the computer. In other words, the lighting instruments on their own are not computerized until the computer is installed and programmed to control them. Practical fieldwork with automated lights depicts that the automated lights are suitable for the lighting of concerts and such theatrical productions. In an operatic production of *Jesus Superstar*, in the Shell Hall at MUSON Centre, Ayodele Alla-Dave used automated lighting systems both for illumination and special lighting. This further confirmed that this system is very suitable for theatrical production, especially the moving head variation of the light, which comes as spotlights and washes. The Opera was written by Lloyd Weber and Tim Wright. The Muson Centre performance ran for four nights in the month of February 2006.

For actual visibility in concert and screen lighting, lighting designers quite often employ the use of conventional concert lights.

Steady and constant use of these lights incurs expensive maintenance cost, which will add to the already expensive nature of television productions in a set-up like ours where all spare parts are imported. Television and theatre lights are purpose-purchased lights, while these automated lights are in the services of companies whose primary function is to provide technical support to entertainment programmes. Apart from the interest that some proprietors of these companies have in the profession, their profit-driven motive makes it compulsory for them to maintain their equipment. This puts them in a better position to respond to the occasional needs of this special equipment by theatre and television houses. And finally, although the moving head is an attempt to compete with theatre and studio lights, the theatre has no time for such expensive gadgets (both in purchase and maintenance cost), except, perhaps, in manufacturer countries. The situation may change when the Iron and Steel projects in Nigeria become of economic benefit to the people. When such a situation exists, it may motivate worthy investments in theatre technology equipment, which will eventually bring down prices.

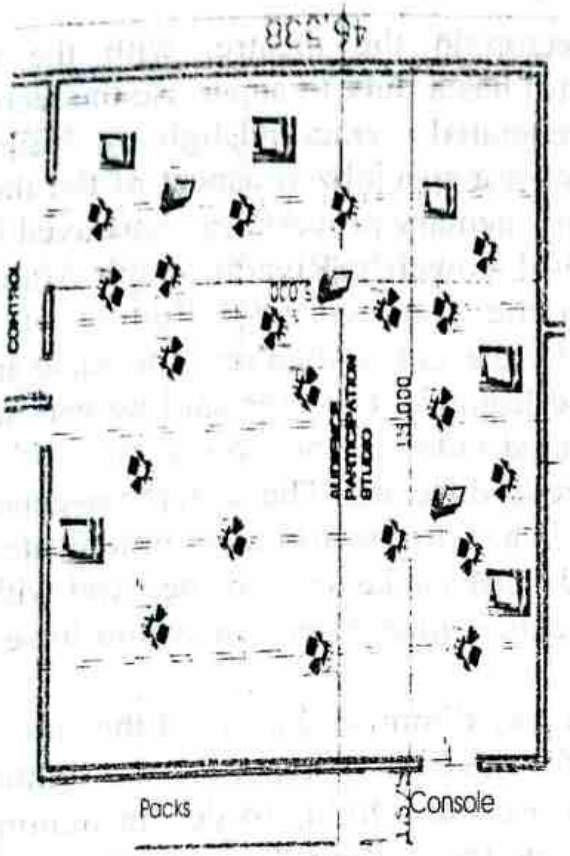
However, if one considers the occasional busy schedule of these technical companies, it may not be out of place to have a few of the automated systems available in studios and theatres for some special lighting needs. Experience has shown that in their busy seasons, equipment allocation does not favour television houses and theatres requiring their services. This way, they will not be subjected to optimum utility that will incur expenses.

In discussing the design process, it is worthy to note that the computer-aided design (CAD) has made scenic design easier for professionals in comparison to the traditional process of sketching, drafting and making the scenic models. As the name implies CAD involves using the computer as a tool in designing, aided by a variety of special software. For example, Duro Oni and Theo Lawson of Total Consult designed a set depicting the deck of a ship using the Corel Draw software. This design, which incorporated lighting expression into the scenic design, was done for John Player's Gold Leaf in 1994 (Oni, 1999). However, for CAD to be widely embraced, what need be done is to introduce theatre professionals to it systematically, through the scanning process. To achieve this, the scenic design will be drawn manually, together with its accompanying model, to specifications, after which it is scanned on

to a computer and printed out for presentation. This scanning to CAD should be for professionals just being introduced to the use of computer. It has all the cumbersome processes of manual design, but the end result is a methodical introduction and demystification of the computer and the CAD to those who, through unfounded apprehensions, are resistant to the emerging system.

Similarly, lighting is now done with the aid of the picture of the actual lighting instrument being exported on to floor plans. Rather than the use of plastic lighting templates for manual drafting, CD-ROMS are now available from lighting companies with pictures and descriptions of all their equipment stored in them. These CD-ROMS are of great utility in computer-aided lighting designs. The lighting design below was done with the aid of a CD-ROM containing Strand Lighting application resource guide. In it, the entire architectural plan of the complex was scanned, and the grid and lighting design was imposed on the studio space in the plan. With the CAD, the processes of adjusting designs and making changes are simplified and fast. Sections of the design can be worked upon without interfering with the whole design structure, and the director can easily flow with the designer in his world, or vice versa, during the design process.

Grid and master lighting design for AIT Audience participation studio , Abuja



Grid.

Studio 2kw

Arturo

Studio 1kw

Iris

C Orisaremi

Over the years, aspects of CAD have developed into the Virtual Reality (or VR) interactive design format. This, in itself, is still being developed, and is of great utility to various professions and professionals. Virtual Reality, in a simplified form, means simulated reality. While having a discourse on the subject, Sheldon Brown (1997), in his essay, 'Real Arts and Virtual Reality', says

> Simulation is a breakdown of the simple one-to-one relationship between referent and sign, such that the deployment of power and the discernment of meaning are caught up in a complex relationship where the sign of the real can proceed or interchange with the real itself. This is the representational structure that VR overtly engages.

The VR as a design tool advances technological interaction between the designers and other professionals in the theatre because, as a tool, it enables the designer to engage in total presentation to the actors and actresses in a production process after agreeing with the

director. When a performance is simulated and presented to all involved, the concept becomes clearer. There is a functional VR Studio in the Africa Independent Television (AIT) studios in Lagos, Nigeria.

The Technical Director in the theatre, with the close assistance of the designers, still has a duty to supervise the technical execution of the computer-generated scenic and lighting design for performances, for this to remain a specialized aspect of the theatre. A good example of this complementary process was portrayed in the commissioning of the Al-Faisal Tower in Riyadh, Saudi Arabia, as reported by John Offord in the Summer 2000 Edition of *Total Production*. The organizers of the event wanted real spectacle and, in an encounter with Offord, the Lighting Director said he was shown 'a very slick computer-generated video of the Tower, fireworks and all, and it was our job to reproduce it.' The computer-generated video is the design, produced in a virtual world to communicate what the real Tower, fireworks and other packages, will be. And with this a proper and appropriate execution plan of action would have been drawn.

The above facts in no way diminish the use of the automated lighting systems. They are still the best systems for the lighting of concerts because it is easy to use these lights to design lighting for musical performances. It affords the willing designer unimaginable latitude to conceptualize and execute plots at a very high speed rate.

All this portrays positive development for the theatre, as modern technology continues to facilitate events. For instance, virtual set for the screen allows for set changes in seconds. Except for the inadequacies of automated lights in the theatre, as stated above, the system does reduce constant movement of lighting crew during performances. Even the inadequacies will be resolved in no distant future, because new devices get obsolete before they are hardly out of the factories, considering the speed of research and development in technology. Not belonging to a manufacturer nation should put Nigerian professionals into the creative advantage of being first and foremost artists that engage the services of technology to execute their artistic designs, while keeping abreast of changes in the manufacture of relevant equipment.

In conclusion, it is important to note that all performing arts technical support companies and the television transmitting stations

mentioned in this essay, have their state of the arts equipment manipulated and operated by experts with specialised training in design technology and graphics in the theatre and fine arts.

NOTES

1. This writer negotiated the specifications and purchase of the year 2001 lighting equipment for Africa Independent Television (AIT) with Strand Lighting Italia. A report of those lighting installations in AIT studios supervised by this writer has since been forwarded to the Founder/CEO of AIT.
2. The December 31st 1999 "Millennium Concert" was organised by an 'events marketing company' for a brewing company in Lagos. It featured several top artistes in Nigeria and this writer was the computer lighting programmer for the concert.
3. Bassey Effiong's adaptation of Chinua Achebe's *Things Fall Apart* was performed at the Nigerian Law School in Victoria Island, Lagos, during the Easter period of 1991.

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