

CONTEMPORARY DIMENSIONS OF INTERACTION BETWEEN ART AND TECHNOLOGY: IMPLICATIONS FOR STAGE AND MEDIA DESIGNS

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ABSTRACT

Strict disciplinary barriers are gradually being dismantled to create opportunities for cross-disciplinary research and cross-fertilization of ideas for collective benefits in 21st Century scholarship. On this basis, arts and technology have become increasingly complementary. This paper examines current dimensions of the relationship between arts and technology towards enhancing stage and media designs in Nigeria. The paper analyses the nature and scope of designs for stage and media productions and examines the pace and dimensions of technological contributions towards enhancing design practice. An observation is made on the trend of fast-changing technological design-aids and software applications, and the attempt by designers to acquire requisite knowledge for optimal utilization of new technological products. Specific design-aid products are highlighted and their features and peculiarities juxtaposed with known characteristics of media and stage designs to assess their mutual compatibility. The paper asserts that the greatest contribution of technology to artistic designs, like in other aspects of human life, is the production of devices to replace manual solutions; and to enhance precision, flexibility, productivity and aesthetic standards. Nigerian stage and media designers are therefore implored, not only to embrace technological changes of equipment and applications in their related specialties, but also to contribute to those changes based on experiences on the job.

KEY WORDS: Technology, Stage and Media Design, Design-Aid Products.

INTRODUCTION

The concern for interdisciplinary exchange, like cross-cultural relationships seems to be extending in the 21st century. The concept of exchange extends to virtually every discipline. Following this trend of inter-disciplinary exchange, arts and technology have continued to play complementary roles; and many products and situations attest to this relationship. Many art materials are products of science and technology, just as many machines are designed and finished by art-inclined designers. Great men and philosophers, such as Aristotle, Leonardo da Vinci, Michelangelo and Sigmund Freud have over the years explored the relationship between arts and technology profitably. George Seurat, the French post-impressionist painter initiated an experiment in reconciling the art with the sciences and believed that properly applied scientific theory could replace intuition as the basis of art. (Britannica 94).

In the contemporary environment, the relationship between arts and technology for the purpose of enhancing designs for the stage and the media seems to have taken a new turn. First, the trend of change in design-aid products, being applications that facilitate design creation, is fast. Moreover, it has become imperative for designers to acquire the requisite literacy to understand and optimally utilize new design-aid products. This paper is therefore set to examine the characteristics and scope of designs for stage and media productions, and to examine from documented and experiential perspectives, the pace and dimensions to which technology has affected design practice in Nigeria. Current trends of ideological and conceptual cross-fertilization between Arts and technology for the purpose of stage and media design are noteworthy and form the kernel of this essay.

CHARACTERISTICS OF MEDIA DESIGN AND CURRENT TECHNOLOGICAL INNOVATIONS

In artistic terms, media in the arts is an expression that generally refers to agencies through which communication can be held. This wide expression covers every aspect of arts, for every 'art' is meant to communicate. The media seem to be undergoing an electronic revolution as most media forms are

increasingly based on electronic applications. Electronic media include television, video, cinema, radio and recently the Internet. The print media, consisting of posters, handbills, magazines, billboards and newspapers are also popular. Both electronic and print media have been described as "the arts of the 20th century" or "technologically based arts" (Britannica 91). The avenues for design in media arts are as numerous as the forms, each with its own peculiar demands. Generally, the graphic artist designs for both the electronic and print media. And graphics cut across static design and complicated sets to animated montage on the electronic screen.

Recently, jobs that were done manually using simple paper paste-up and manually applied colours are now being executed with computer-aided devices. The process of picture animation, for instance, has metamorphosed from two-dimensional manually created images that are shot in single frames, to internally created three-dimensional representations within the computer, which could be 'lit', 'shot' from chosen angles and 'rendered' to a two-dimensional bitmapped frame. New computer softwares and applications such as Animation Suites® and Poser® that can produce, manipulate and replicate characters with great speed and efficiency now substitute manual processes. Graphic files such as GIF, MNG, SVG and Flash (SWF) allow animation to be viewed on a computer or over the Internet. Versatility made possible by sophisticated equipment introduces a major characteristic of contemporary media art, which is the dependence on equipment, mainly electronic devices, which vary according to stages of production.

Under the current electronic revolution, it is almost impossible to identify media forms that do not engage electronic devices to facilitate production. A video film in production for instance, uses electronic gadgets from the pre-production to the post-production stage. Each stage demands a different set of equipment. While the pre-production stage may demand few simple equipment such as VHS cameras that can take shots at alternating angles, mostly for purposes of auditioning and costume choices, the actual production demands more machines. Sophisticated digital cameras such as the popular DV Cam, mini DV, SVHS and BETACAM are demanded for high picture resolution. This is in addition to

good quality boom microphones, to grab good sound quality. The postproduction stage is a period to download rushes and articulate textual, pictorial and aural forms. This calls for good non-linear state-of-the-art editing equipment with implanted effects to replace the old linear varieties. New equipment for editing include the ever-changing PINNACLE® ranges, the current being PINNACLE 10®; Video Card for the transfer of audio-visual information into or out of the computer, and a Burner for transferring of edited shots to CD. The frequency with which computer applications for design change is swift. Sometimes, designers adjudge it impracticable to adjust to changes, but it must be noted that every change is indexical as an improvement over the previous.

Similarly, in the print media, sophisticated multiple-colour rotary press has been introduced to replace single plate lithographic printing machines and the mechano-manual letterpress system. Colour separation is now handled digitally using relevant computer applications. Poster design, typesetting and page layout are now done with the computer instead of manual processes. Popular computer applications for graphics include Adobe Pagemaker® for desktop publishing, Photoshop® and Corel Draw®.

Sophistication in 21st century communication systems has facilitated the development and propagation of current design-related technology. The Internet is perhaps the greatest medium of information dissemination in human history with inbuilt possibilities to explore alternative ideas and innovations. It has helped tremendously in the diffusion and convergence of media and allied technologies, such that new ideas and products can easily be accessed.

Technological sophistication in the media seems to have introduced complexities whereby designers are tasked to understand the configurations of rapidly changing machines. In other words, there is a sharp rising demand for technical proficiency among designers, thus stretching their professional capacities. This is understandable because as Uka observes, technology is naturally inclined towards "extending and amplifying human capacities" (2). For designers, there is no advantage sticking to old procedures just because they are familiar instead of studying and applying new technologies.

Another characteristic of media design is the use of scripts. A script could be as brief as advertising copy or as lengthy as a film script. Script writing is an art that demands vast knowledge of media production as a whole. The script encompasses, the plot, characterization, thought, language, melody and technical/production details. Recently, scripts such as Soyinka's *The Beatification of Area Boy* (1) and Salami's *Sweet Revenge* (30), specify the equipment to be used and the effects to be expected. This calls for mastery of the technology that can help the realization of effects stipulated in the script. With regards to the actual arts of script writing, there may not be automated script writing machines, but the computer provides the ideal environment for softwares that facilitate the processing of scripts. From another perspective, Brockett examines the possibility of electronic maneuvering of scripts at certain stages of the production. He cites the possibility of using the camera to screen all scripted details not thought to be important by the director (25). This can also be done in the process of editing. Media art, being very vast definitely has other characteristics. The few mentioned here illustrate the extent to which technology has lent support to media design.

CHARACTERISTICS OF STAGE DESIGN AND RECENT TECHNOLOGICAL APPLICATIONS

Even though the expression, 'stage design' is vague, an attempt has been made here to specify its peculiarities. In technical terms, stage design refers to all designs made for the stage and on the stage for the purpose of theatrical production. Stage design starts from the stage structure itself and cuts through the scenery, costume, make-up, properties, lighting and sound. Despite the multiplicity, all the areas exist

concurrently on stage. The foremost of the characteristics of stage design, therefore, is the ability to integrate all components and the possibility to perceive all as a whole in a single production. Each design area may present peculiar challenges but the ultimate essence of solving design problems is to ensure that design components make meaning when used in conjunction with other areas. For a smooth blending of design forms for the stage, communication must be enhanced. The cellular phone seems to be the latest technology in Nigeria that has been adopted in stage inter-communication between the director, designers, performers, stage managers, administrators and other operators of the theatre 'machine'. The device with its wide range of possibilities functions as an alternative to the short-range wireless and the wired telecom systems. For now, the greatest defect of the digital cellular phone device is the unreliability of its Nigerian service providers. While this problem is still being addressed, it is advisable to arrange for reliable and conventional methods of intercom, including light signals, coded movements and other manual devices as alternatives.

The need for co-existence of component parts gives rise to what would become another characteristic of stage design, which is synchronized presentation. The appearance of design forms on stage follows definite cues based on close timing. Actors' entrances must synchronize with the lighting of particular sceneries and sound effects are cued on certain movements. All the production elements are woven into a time casing and the understanding of the whole is dependent on the players' ability to keep to proper timing from the period of preparation to execution on stage. The ability to harmonize production elements is the strength of a stage production. To illustrate the effects of harmony, Enendu cites the production of Ogunyemi's *Langbodo*, directed by Bayo Oduneye in Ibadan 1974. According to Enendu, the high point of that production was costume change that was properly timed and executed.

Young Akara Ogun exits from the public square wearing his street dress after accepting to lead the other hunters on the challenging and risky expedition to Mount Langbodo. He immediately re-enters to join the other hunters in his full hunting outfit amid dance and music. The speed of the change and entry...drew ovation for Akara Ogun on each of the nights of production...(91)

Effective timing calls for flexibility and precision, which are other characteristics of stage design. Both qualities are demonstrable using every aspect of theatre design, but they are more maneuverable in lighting design and sound, owing to the availability of precision equipment. The natural qualities of light: colour, intensity, form, direction and movement, following Wilson's adumbration, are controllable (381). With good light and sound equipment and expertise in handling them, a designer can realize various natural and special environments on stage. Flexibility and precision in lighting and sound could result in convincing and satisfactory spectacle necessary for a stage performance. Modifications have been introduced in lighting control systems, lantern structures and capacities, rigging facilities and light projectors. Frederick Bentham, a lighting engineer and artist has been particularly credited with masterminding the production of specialist lighting equipment for the theatre in Strand Electric (Enendu, *Modern Technology* 35). There have been innovations in the fabrication of lanterns in terms of casing and interior components: holder, reflector, lamp, lenses and lens control. The essence of these innovations is often to reduce the bulk, enhance portability of lanterns without loosing capacity, and to get maximum flexibility and control (Wilson 383). If anything, capacities in terms of wattage, focus and coverage are increased despite reduced packaging, especially for flood and spotlights. Wilson cites Var-lite, a kind of spotlight as having amazing versatility, lending to automatic

change in colour for as many as 1,000 variations (385). Designers with fertile imagination find newer functions for the ultra violet light. Strobe light, derived from the strobetrum, has been encased and used creatively to break vision into slide like images on stage.

Robotic heads have also been introduced and are particularly functional in lighting scenes of festivities on stage. They are lighting equipment with flexible parts whose movements can be programmed using a computer. Robotic heads can move randomly, sometimes reflecting images and characters, flashing onto different parts of the stage and the auditorium. Its potentialities have been widely explored by entertainers in variety shows. The 2005 Gulder promotional Road Show in Nigeria; the V-Mobile fashion fair in Iboim Hall, Uyo, Nigeria in 2005; and the Cross River State Christmas Festival Shows in Calabar, Nigeria in 2005 and 2006 are recent events where Robotic Heads were used in stage lighting. Similarly, haze or smoke machines have been used for special effects on stage. The machines can be programmed to release entrapped hazy non-toxic gas, which also provides good background for lighting. Light beams are visible through the haze in full colour and lighting designers explore the hazy atmosphere for colourful lighting compositions. There are other devices to simulate natural, artificial and special effects for stage communication. Timing, flexibility and precision are also realizable in scenery in the area of scene shifting, which is done traditionally using stagehands, the flying system, elevator system, revolving system and the wagon. The beauty of scene shifting is in the timing, precision and execution of change.

As an innovation to conventional scene change procedures, contemporary scene technologists have introduced kinetic scenery whereby scenery can produce motion by virtue of in-built or external devices. Currently, large scenery pieces can be mounted on motorized casters and shifted to stage locations. Moreover, computer circuits can be used to control stage elevators and traps instead of direct mechanical or manual devices. Again, the application of kinetic scenery to stage design calls for proper timing, flexibility and precision. Most modern theatre houses, especially in developed countries have in-built scenic mechanisms operated using electricity, hydraulic, electromechanics or mechano-manual processes. Using such devices, the stage can revolve and can be tilted vertically or horizontally as a whole or in parts. All these, no doubt, add to the glamour and marvel of presentation on stage. Recently, the glamour of stage art and technology has been extended to public buildings. The Christian Ecumenical Centre in Abuja, Nigeria has adopted contemporary technology of revolving stage for the pulpit. The indication here is that stage arts and its allied technology are gaining wider acceptability.

Another characteristic of stage design is its reliance on a script. Usually, in designing for the stage, like the media, the designer uses a script, which he studies and analyzes to understand his role within a given production. Technical details are the most crucial for the designer who needs to read between the lines to develop functional designs for a given production (Parker and Smith 71). Design details drawn from scripts may include lighting plan, sound schedule, ground plan, elevation drawing, work-studies, models and other pictorial and non-pictorial expressions that help concretize a design concept. Beyond the manual processes of developing a design, new computer applications such as Computer-Aided Design/Computer-Aided Manufacturing (CAD/CAM) have been devised to help in plotting, sketching and modeling with in-built templates for the simulation of three-dimensional forms. CAD is software for creating precise plots and sketches, while CAM outputs three-dimensional objects by adding a computer to a machine tool, such as drill, saw or lathe. In other words, CAM controls the machine to produce three-dimensional parts. CAD information is combined with CAM procedures through shared databases (Grabowski 1). The implication of this technological development for stage design is that props and set pieces can possibly be produced with CAD/CAM technology.

Many more characteristics may be attributed to stage designs depending on focus or argument. Some characteristics may even be developed following design forms and functions, and it appears every characteristic now has a technological support.

COMPARATIVE CONSIDERATIONS

In examining the characteristics of media and stage design, certain similarities have become apparent. For instances, both areas are a cluster of different arts. In media, there may be vagaries of approaches to solving design problems for the screen and for the print media. Similarly, the stage with its various art forms calls for solutions appropriate for each form. The essence of solving design problems is to facilitate the communication of meaning through any chosen art form. Transmitting meaning is paramount to all artistic expressions and this is common to both media and stage art.

In the general drive to create meaning within a chosen art form, several technological devices have been developed and used. The clamour towards technology sometimes seems to obscure the artistic contents. Much emphasis is laid on technological applications that sometimes undermine or suppress certain artistic contents. The computer as the center-point of the electronic revolution creates, records, edits, and executes. Stage lighting and sound effects can now be preset to follow a time sequence using the computer. The opening ceremony of the 8th All African Games in Abuja, 2003 was a large stage performance, so to say, with a large artistic contingent that choreographed, acted and participated in all artistic categories. One aspect that can easily be recalled about the Games is the lighting and sound effects, which were handled mainly by French technicians and supported by a few Nigerians. The panoramic lighting effects were cued into a central computer control panel and this made it possible to light the performance by simply touching buttons on the control set. This romance with the button generates a debate to determine the point at which the application of technological aids to arts should be checked. Enendu contributes to this debate thus:

The ultimate purpose of theatre is, and must be art. Technology is summoned by theatre to support the arts. In all cases, the disciplinary paths are clear, they are not antagonistic of each other, no clashes abound (32).

In as much as design and technology are vital in projecting the idea in theatrical performances, they should not shroud the message or its artistic character.

In economic terms, hiring of light and sound equipment, postproduction activities, preparation of costume and make-up, preparation of scenery, props and other design areas attract high financial capital; and there is a tendency for most designers to choose sophisticated technological options where available with little or no considerations for economic or artistic implications. In choosing technical design options, the designer should consider the nature of production and the configuration of the stage, among other things. A resourceful technical director should weigh on the artistic, production, financial and technological scale to determine viable options for a given production. Designers must understand that advancement in technology as applicable to stage and media design is supposed to facilitate rather than problematize or prohibit productions.

IMPLICATIONS AND CHALLENGE FOR THE DESIGNER

As stated earlier, there seems to be a global blurring of boundaries in all disciplines. Every specialty assesses cross-disciplinary interests towards identifying a point of interest. Designers, particularly those operating in the Third

cross-disciplinary interests towards identifying a point of interest. Designers, particularly those operating in the Third World should not be left out in the technological scheme of things, as there is no gain dwelling in the past for fear of change. It is necessary to find a point of relevance under the current technological dispensation. Specifically, theatre and media designers should not only understand new innovations in the profession but should become contributors to the global resource pool of arts and technology. They should spearhead changes based on the problems they encounter on the job. For instance, having seen the benefits of computer in design production and presentation, designers should learn to write computer programmes towards solving specific design problems. There are instances where technological implantations are expensive. Under such circumstances, innovative designers should seek alternative solutions within their cultural ambiances. Designers should initiate studies on developing local technological options to cut operational cost. In this regard, Ajibade's (2006) doctoral research on fabricating technical equipment for the theatre using local components and Andrew's (2006) doctoral thesis on the use of local colourants to complement imported ones for theatrical design, both at the University of Calabar are laudable initiatives. These studies are meant to produce workable alternatives using indigenous resources.

Finally, though theatre and media designs are basically arts, it is apparent from all considerations that they survive on products of science and technology. The global trend in every discipline is to draw from various springs of knowledge for survival. This is the idea in globalization, which, in a broad sense, refers to "the process whereby the world becomes increasingly seen as 'one place', and to the ways in which we are made conscious of this process" (Featherstone 60). The encompassing philosophy in globalization therefore calls for receptiveness as well as resourcefulness - qualities that must be developed and sustained by Nigerian designers in the creation and application of novel ideas towards enhancing the practice of arts with contemporary and global appeal.

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